

OUR POLICY

Our business was established on a quality basis. It has grown because we act on the belief that we can maintain our position in the trade just so long as we make better goods than our competitors—and no longer.

Our theory is that we can best serve ourselves by supplying our customers the best goods. Our acts have made this Theory a Policy, for we have not merely the desire to make the best goods but the means of converting that desire into a Reality.

In our thirty-six years in the photographic business there have been several revolutionary changes. Doubtless there will be many more. Whatever they may be our Policy shall be to furnish (without following every will-o'-the-wisp) the very best of those goods which painstaking testing shall prove to be of benefit to our customers in the Simplification of Photographic Processes and the Advancement of the Art.

C. K. Co., LTD.



FROM AN ARTURA IRIS PRINT

A. F. Bradley



STUDIO LIGHT

— INCORPORATING —

THE ARISTO EAGLE .. THE ARTURA BULLETIN

ESTABLISHED 1901

ESTABLISHED 1906

VOL. 8

JANUARY 1917

No. 11

GET MORE QUALITY

There are still a few people who talk of the good old days, the good old methods, the good old quality, etc., and go right along following the line of least resistance instead of holding on to the good things of the old days that have not been bettered.

There were many good things in the methods used a few years ago, and some of them are still good. Nothing so satisfactory has ever been found to take the place of Pyro. That's why plate manufacturers give Pyro the preference in their formulas.

There are developers that are a bit easier to handle, but they are not as good—they do not produce negatives of the most satisfactory printing quality.

You have seen a photographer develop a negative with great care, fix and rinse it, hold it up to the light and gloat over its beauty, and then condemn his

printing medium for not reproducing the wonderful quality he has secured.

He will tell you all about the good old days when things were so different—when people even lived longer than they do now-a-days. But don't believe him—for they didn't—it only seemed longer. And the same is true of his negative—it *only seems* to have quality, that's why it doesn't print well.

If you have ever made lantern slides, you know you must get a beautiful looking positive that will transmit a great amount of light. It is beautiful because of this transparent quality. And this is the *seeming quality* you get in the average coal-tar developed negative, but it prints through.

On the other hand, the Pyro developed negative doesn't look so good, but it has the necessary qualities for printing. It holds up under the printing light and gives you a quality in the print

that pleases your customers and makes your work sell better.

Materials and methods are constantly being improved, but the advice of the manufacturer is not always heeded. Pyro is always recommended for developing plates and films because it gives the best negative for printing, and this is just as true today as it was in the "good old albumen days."

There is nothing better than an Artura print from a Pyro-developed negative. Artura has the longest scale of gradation of any paper made, and gradation is quality. Every photographer who talks of the good old days and good old results has at some time used Pyro and knows that the Pyro-developed negative is a plucky printer. And it takes a plucky negative to reproduce a full scale of gradation.

The grey negative, or even one with a slight tone, will not do it unless it also has printing density, and this is only secured with coal-tar developers at a loss of other qualities. The Pyro-developed negative, in addition to its general color, has a stain image beneath that of the silver deposit, and this gives it a peculiar printing quality which it is difficult to equal.

Pyro is produced in crystal form, which makes it very convenient to handle, the Pyro color is very easily controlled by increasing or decreasing the amount

of sulphite of soda in the formula, and there is no longer any difficulty in keeping a Pyro stock solution for any reasonable length of time since Potassium Metabisulphite (or Sodium Bisulphite in equal quantity) has been recommended as a preservative.

If you are not getting the quality in your work that you should get, Artura prints from Pyro-developed negatives will convince you that quality superior to that of the old days may be had with the least effort and the greatest certainty.



OUR ILLUSTRATIONS

For many years a Fifth Avenue Studio has been the ultimate goal of the most ambitious photographer and those who have attained it are especially fitted in ability and business acumen to maintain the leadership in their chosen line. Fifth Avenue is essentially an Avenue of magnificent and exclusive Specialty Shops and its photographers have specialized likewise.

Alvin F. Bradley's clientele is made up from that portion of New York's wealthy and refined social set which demands the Bradley stamp of artistic realism in photography. Bradley portraits have most excellent photographic and artistic quality, the result of a thorough knowledge of art principles and their practical applica-



FROM AN ARTURA IRIS PRINT

By A. F. Bradley
New York



tion to the technique of photography.

Mr. Bradley has always been an ardent lover of the photographic art. At twenty years of age, a student in the Philadelphia Academy of Fine Arts, he began his career with the well known firm of Gilbert & Bacon.

He later opened and managed the Gilbert Studios of Washington, for four years. His success was such that he was transferred to New York at the opening of the Gilbert Studios there, located on the present site of the Altman Building. Later, Mr. Bradley purchased this studio and launched on his own business career, which he has followed with success for the last twenty years.

To work off surplus energy he has maintained three studios in New York and a branch in Philadelphia, but, with the experience gained, has come to believe in the concentration of interests.

Mr. Bradley has ably served as president of the Professional Photographers' Society of the State of New York for two terms, and one term as chairman of the New York Section of that society.

Such a page of history should be of interest and value to the photographer who is young in the profession. Most of our best photographers, like Mr. Bradley, owe much of their success to the advantages of a thorough early training in the studio of some competent workman who has been able

to give the benefit of a successful business experience as well.

Aside from business, we would say that Mr. Bradley's chief interest centers in his home, which is an ideal one. And he thinks so well of his profession that he has given his son a six years' course in the Art Students' League in preparation for his photographic career.

He is also fond of his friends and particularly enjoys getting off in the backwoods of Maine with several congenial companions—photographers from down Boston way—who can completely forget business, get close to nature, hunt, fish, and enjoy the great outdoors in a truly primitive fashion.

The examples of Mr. Bradley's work which we are privileged to reproduce in this number of *STUDIO LIGHT* are from beautiful Artura prints, having the characteristic Bradley quality, though a considerable amount of it is lost by the half-tone process. Artura is used exclusively because of its quality.



A successful print is only secured by using a paper that will reproduce the quality of the negative.

ARTURA

Reproduces quality for quality.



FROM AN ARTURA IRIS PRINT

By A. F. Bradley
New York





SAFER LIGHTS — BETTER QUALITY

There are probably more plates fogged from unsafe loading and changing lights than from unsafe developing lights, because a brighter light and one that is less safe is too often used.

It takes but a few minutes to load holders and change plates, and the eyes do not readily become accustomed to a weak light. Dipped globes with clear tips, or similar lights that are equally unsafe because of their brightness or improper color are often used with the result that negatives have a veil of fog which destroys their snap and brilliancy.

A greater degree of safety may be secured at a much smaller expense if the Brownie Safelight Lamp is used as a changing light. As will be seen by our illustration, this lamp is a metal shell

with a square safelight in the side and a round safelight in the bottom. An ordinary electric globe of six or eight candle power screws through the top and into an ordinary lamp socket. It may be attached to a well socket and the main light thrown down upon a table, or it may be used as a swinging lamp on an electric cord, and in either case the two safelights give sufficient illumination for all purposes.

It isn't necessary to load holders in absolute darkness, but plates are much more sensitive when dry than when wet and should be handled more carefully.

Ruby globes may be safe under some conditions and for some purposes, but, as a rule, they are not safe, as they are used for plate changing. And in addition to the lack of safety, there is the expense of replacing them when they are broken or the filament burns out. With the Brownie Safelight Lamp any electrical globe may be used, provided it is not of too high candle power and the safelights retain their color indefinitely.

The lamp is small and is especially convenient for the photographer who occasionally finds it necessary to load holders away from the studio. It is equally adaptable as a developing light in an emergency.

The Brownie Safelight Lamp is fitted with 1 B Safelights and the price is \$1.25. The 1 B



FROM AN ARTURA IRIS PRINT

By A. F. Bradley
New York



Safelight is safe for ordinary plates or film, but additional safelights are furnished for special purposes.

Series 00 Safelight for Artura and similar papers.

Series 0 Safelight for Bromide Paper and Lantern Plates.

Series 1 Safelight for ordinary and extra rapid Plates.

Series 2 Safelight for Orthochromatic Plates.

Series 3 Safelight for Panchromatic Plates.

Circular Safelights, any series, for end of Brownie Safelight Lamps 25c

Rectangular Safelights, any series, for side of lamp . . . 35c

The Kodak Safelight Lamp with 5 x 7 Safelight is a very convenient lamp for developing where an extra large light source is not required.

The Kodak Safelight Lamp sells for \$4.00, and extra 5 x 7 Safelights, of any series, are 60c each.



TIMELY HINTS

January and February should see you putting into practice the many re-arrangements and alterations that you have long since decided upon, though you have put off the actual doing of these things from time to time, for one excuse or another.

If you know of any particular accessory or fixture that would have helped you to turn out more work — better work — and more conveniently during the recent race against time, now's the time

to install that accessory or fixture. If you wait, you'll very likely be in the same old state of turmoil next December.

If you have never taken a thorough inventory, do it this month, for there is nothing like a good inventory to show just how strong or how weak one is.

Apparatus and supplies may have a value to you many times more than the market value—the price you would be willing to pay, were you considering the purchase of similar articles from another photographer. Be fair to yourself, and do not deceive yourself by compiling too favorable an inventory. No one else may ever see the list and the figures, but that's the very reason why you should have a genuine inventory.



CUTTING MASKS

Nothing is more unsightly to a careful workman than a print made with a mask that is not perfectly true. It is a simple matter to cut a mask—and again it isn't. It's a rainy day job because it requires time, care and patience. And when you have a nice set of masks cut you are sure to find need for an odd size just when you don't like to spare the time to cut it.

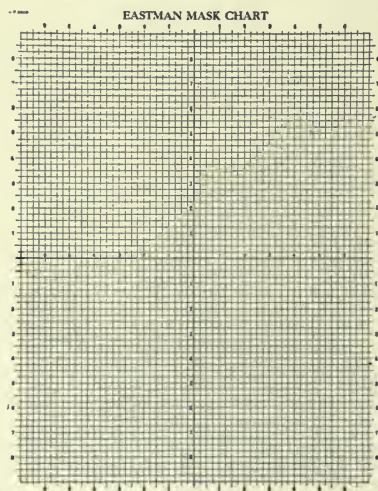
This is where Eastman Mask Charts come in handy, and once you have used them you will always have them on hand. The charts are simply pieces of mask-



FROM AN ARTURA IRIS PRINT

By A. F. Bradley
New York





ing paper ruled for every size of mask you may have occasion to use. These horizontal and vertical lines are one-quarter of an inch apart and are numbered in inches both ways from the center and along the four sides.

It is a simple matter to follow these lines with a sharp knife and cut a mask of any size with absolute accuracy, for the difficulty in making masks is not in the cutting but in laying out the size and being sure of securing a perfectly true opening.

Mask Charts furnish the draughtsmanship, you furnish the labor. The price is 10 cents per dozen for 5 x 7, 15 cents per dozen for 8 x 10, and 30 cents per dozen for 11 x 14, at your dealers'.

KEEP THE QUALITY UNIFORM

Watch temperatures!

You have heard this warning often, but it bears repeating. It is for the man in the dark room or printing room, but it is also for you, as you have these men in your charge.

In the greater portion of this big country at this time of year, the water from the tap is too cold to use either in the developer for plates or paper. It is a very simple matter to temper it down, but it isn't always done. The result is poor negatives or poor prints.

A plate developer that is too cold produces thin, flat negatives—if too warm it produces too much contrast. The right temperature is 65° F.

A great many photographers use Eastman Plate Tanks, and once the right temperature is secured, these will keep it right for the length of development. Don't expect to make up a developer at a temperature of 55° F, and have it warm up in the tank, just because your workroom is warm. If the developer you place in the tank is too warm or too cold, the tank will keep it too warm or too cold, regardless (within limits) of the temperature of your work room.

It is always advisable to boil water that is used for developer, and if this is done the water can



FROM AN ARTURA IRIS PRINT

*By A. F. Bradley
New York*



be placed in a large bottle and kept where it will not become too cold for use.

Boiling drives the air out of the water and so eliminates much of the danger of air bells on your plates. This is a common complaint where water is under great pressure and is likely to become aerated.

But it must be remembered that water also absorbs air very rapidly, so that water boiled for developing purposes should be used within a reasonable length of time or kept in bottles well filled.

Many photographers are now using open tanks for developing, and it is not so easy to temper several gallons of solution once it has become too cold for use if the tank does not have an outer jacket that can be filled with warm water.

Bottles of warm water can be placed in such a tank, but are likely to break if they are too hot. A glazed fire brick may be heated and used to advantage, or any of the various electric appliances used to heat water may be used for this purpose if they are of the type made to place in the water.

Whatever the method may be, correct temperature is of sufficient importance to have it used regularly, for nothing will upset an even run of quality so quickly as radical variations in the temperature of developers.

ADVERTISING CONTEST RESULTS

Three thousand dollars has been distributed in ten cash prizes to the winners of the 1916 Kodak Advertising Competition.

Competition was keen and the work of the judges was made all the more difficult by the great number of really good pictures entered.

The decisions were often close, but the judges made their selections in a fair minded way. They were guided in their decisions entirely by the merits of the pictures—their suitability for advertising purposes.

The pictures entered in the 1916 contest have been especially interesting because they showed remarkable originality—a great diversity of ideas with selling points—pictures that told a story, and many of them that told their story exceptionally well.

The use of photographs as illustrations in advertising is growing rapidly. Not alone in the national magazines, but in special advertising and catalogues, photographs are being used in greater numbers to show the uses and advantages of the goods advertised and especially to show the pleasure or satisfaction derived from their use.

Such pictures, of real people, doing something real, have human interest. They make other people want to do likewise, and

so create a desire for the things about which they tell their story.

Our advertising contests furnish us material for advertising illustrations—our illustrations interest other manufacturers in the use of photographs for advertising, and the experience of those who have competed for our prizes has taught them much about the requirements of the man who has something to sell and wants a picture to help him sell it.

There is a great field for the photographer who has ideas and knows how to express them in pictures, for such pictures are worth money to any advertiser.

The judges of the 1916 contest were Mr. Ryland W. Phillips, President, Photographers' Association of America, Philadelphia, Pa., Mr. E. B. Core, Yonkers, N. Y., Mr. Condi Nast, publisher of *Vogue*, New York City, Mr. Edward Hungerford, Advertising Manager, Wells Fargo Express, New York, and Mr. W. R. Hine, Vice President and General Manager, Frank Seaman, Inc., New York City.

The prizes were awarded as follows:

First Prize—W. B. Stage,
New York

Second Prize—Chas. Luedecke,
West Philadelphia, Pa.

Third Prize—Karl Strus,
New York

Fourth Prize—Chas. E. Mace,
Estes Park, Col.

Fifth Prize—A. Van,
Toronto, Canada

Sixth Prize—J. B. Hosteter,
Davenport, Ia.

Seventh Prize—Harry Steffens,
Cleveland, O.

Eighth Prize—Wm. S. Ellis,
Philadelphia, Pa.

Ninth Prize—Wm. C. Motteram,
Philadelphia, Pa.

Tenth Prize—Fashion Camera
Studio, New York



HOW TO AVOID HALATION

Halation has been observed from the earliest days of photography, but became more common upon the introduction of glass plates.

In the ferrotype and similar processes there was no transparent support, so the only form of halation was the reflection or spreading of light within the emulsion, which was not great.

On the introduction of the wet plate, a more aggravated form of halation was encountered, due to the reflection of light from the back of the glass support to the under side of the emulsion. This, however, was not as great as the halation of the dry plate, for the color of the iodized collodion emulsion of the wet plate acted as a filter and cut out much of the light which would otherwise have been reflected.

The emulsion of a dry plate being more transparent, there is more halation, and the chief cause is the reflection from the back of



FROM AN ARTURA IRIS PRINT

By A. F. Bradley
New York





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By A. F. Bradley
New York



the glass support. The extent of halation depends upon the extent of the reflection, which is determined by the thickness of the glass and the angle of the rays of light which enter it. The refractive index of the glass also plays a small part—but this is of minor importance.

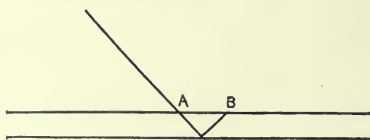


Fig. 1.

Figure 1 shows a ray of light entering a glass plate at A and the reflection of this ray of light at B. The space from A to B shows the breadth of the line of halation, for there is sufficient diffusion to fog the space between A and B and to show a vignetted blur or fringe of fog beyond the point B.



Fig. 2

Figure 2 shows the same ray of light entering the emulsion of a Portrait Film. The support of the film is so thin that our diagram cannot show the reflection of the ray of light after it has passed through the film emulsion and support. The amount of reflected light is therefore practically negligible. There is practically no

halation in Portrait Film other than that which is due to the spreading of the light in the emulsion itself, known as irradiation or lateral spreading of light, and this cannot be considered, for it is present in all emulsions and is due to the scattering of the light by the silver grains.

Halation in glass plates increases with the thickness of the glass and it also increases with the angle of the rays of light entering the glass. The extreme margins of the plate will show the greatest amount of halation and the center of the plate the least.

The most noticeable halation is that around windows, for there is always a very bright light in contrast with a deep shadow. It shows most where it blurs the dark line of the shadow, but it is present throughout the entire window.

Because a shadow is not large in area or dark enough, or a line is not sharp or regular enough to make the halation distinctly noticeable is not an indication that there is no halation. In fact, halation is often most destructive where it is least distinguishable. Its inroads on true quality have been so persistent that the negative without halation is the exception rather than the rule.

In portraiture, the eye sees detail in the whitest drapery. There is no highlight so strong



FROM AN ARTURA IRIS PRINT

By A. F. Bradley
New York



but what the ground glass will show it interwoven with minute shadows—and these are quickly destroyed by halation. There is a brilliancy and roundness to this ground glass image which you are never able to truthfully reproduce in your glass negative and your print.

You have come to look upon this loss of quality as unavoidable. You reproduce as nearly as possible and attribute any error to the deficiencies of the photographic process.

If this is the case you have not used film. You have not known what the elimination of this degrading influence of halation will add to your results.

This is especially true in portraiture where the texture of flesh is of greatest importance and where every strong point of light on a face as well as the gradations of the half-tones are preserved in all their brilliancy in the film negative.

Bright spots of light, such as windows, when out of focus, show more halation than when their images are sharp. And as they are usually in the margins of the picture the halation is further accentuated by the light rays reaching the margins of the plate at a greater angle.

Film cannot sharpen lines that are out of focus but it will largely do away with the halation, and when windows or similar light sources can be focused sharply

the reduction of halation is so great that there is no comparison between the plate and the film result.

Those who work for soft effects with soft focus lenses or other means of diffusion are often disappointed because the effect they see on their ground glass is not what they get in their negative. Halation has upset their calculations and intensified the effect of diffusion.

The commercial photographer is especially concerned with halation and has found it necessary to use double-coated or backed plates in much of his work. But commercial workers are adopting film and find it better in every way and less expensive.

Note again the greatest cause of halation, Fig. 1, and the remedy, Fig. 2. Then prove it to your complete satisfaction by a trial of Portrait Film.



Please Specify

The stock-houses have asked us to emphasize the fact that Azo K paper is now being made in two contrasts—Soft and Hard—instead of one only—Hard—as was the case until October last. Please specify in your orders whether you want K Soft or K Hard, thereby enabling your dealer to give prompt service without delay or disappointment.



FROM AN ARTURA IRIS PRINT

By A. F. Bradley
New York





BETWEEN friends,
the gift that con-
veys the most of per-
sonal thoughtfulness
—your photograph.

*Make an
appointment
to-day*

THE PYRO STUDIO

Cut No. 233. Price, 50 cents.

THE ONLY CONDITION

We make but one condition in our offer of cuts for the use of photographers.

It is obvious that two photographers in the same town would not care to use the same cut, and we are therefore obliged to limit this offer to one photographer in a town. It will be a case of first come first

served. The first order from a city will be promptly filled. Succeeding orders (if any) will necessarily be turned down and the remittance, of course, will be returned. It is also obvious that we cannot, on account of the cost of the drawings, furnish any large variety of cuts at the nominal prices quoted, and therefore can offer no substitute cut. Get your order in *first*. C. K. CO., LTD.

BULLETIN: THE EASTMAN SCHOOL OF PROFESSIONAL PHOTOGRAPHY FOR 1917



Pittsburg, Pa.	January 16, 17, 18
Philadelphia, Pa.	January 23, 24, 25
New York City	January 30, 31, February 1
Boston, Mass.	February 6, 7, 8
Syracuse, N. Y.	February 13, 14, 15



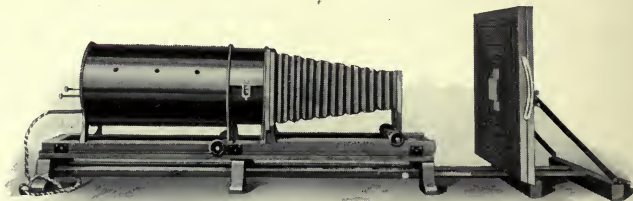
Half-tone Cut 233

Price, 60 cents.

A better cut for a high grade of printed matter, such as booklets, folders, announcements, etc., that are printed on a coated paper.

This cut is not suitable for use in newspaper advertising. Order the line cut on opposite page for all but the best of printing on the best of paper stock.

Don't overlook the big profits of the enlarging business.



We have increased the efficiency of the

EASTMAN ENLARGING OUTFIT

by equipping it with a lamp giving double the volume of light of that formerly used.

Mazda Nitrogen Lamp, 500 Watt—lamp and reflector adjusting screws outside of lamp-house—camera and lamp-house on roller bearings and fitted with quick acting lock nuts—10-inch condensers affording perfect illumination of 5 x 7 negatives—revolving adjustable negative carrier—drop front and hinged back easel and full set of kits to 20 inches—these are a few of the features of the Eastman Enlarging Outfit.

THE PRICE

Eastman Enlarging Outfit, complete with lamp,	
but without lens	\$100.00
Planatograph Symmetrical Lens, 8-inch focus,	12.00

EASTMAN KODAK COMPANY,

All Dealers'.

ROCHESTER, N. Y.

To Guess or Not to Guess

That is the question you must settle in regard to the temperature of your solutions.

Thermometers

enable you to be certain on this essential point. There's the *Eastman Thermometer* fitted with a convenient hook for use with the tank—price 60 cents. And you can also have a combination of two in one—the Thermometer Stirring Rod, made of good glass—price 75 cents.

Canadian Kodak Co., Limited,

Toronto, Canada.

At Your Dealers'

TOZOL

The Complete Developer

Requires the addition of no developing agent. It's right just as it is, and is prepared exactly as it was before the war.

The correct developer for Artura, Azo and Velox.

The Price

1 oz. bottle	\$1.10
$\frac{1}{4}$ lb. bottle	4.00
$\frac{1}{2}$ lb. bottle	7.75
1 lb. bottle	15.00

Canadian Kodak Co., Limited,

Toronto, Canada.

At your dealer's.

The New Developer:

KODELON

(Paramidophenol-Hydrochloride)

An economical and highly successful developing agent, used in connection with Hydrochinon, for all developing-out papers.

It bears the Kodak Tested Chemical Seal.

THE PRICE

1 oz. bottle	. . . . .	\$ 1.10
$\frac{1}{4}$ lb. “	. . . . .	4.00
$\frac{1}{2}$ lb. “	. . . . .	7.75
1 lb. “	. . . . .	15.00

Canadian Kodak Co., Limited,

Toronto, Canada

All Dealers'.

WANTED

DISCARDED NEGATIVES

We purchase discarded negatives of standard sizes from $4\frac{3}{4} \times 6\frac{1}{2}$ to 20×24 , providing same are in good condition and are carefully packed in accordance with our instructions.

We will pay all the freight on shipments of 100 lbs. or more, except from localities where the freight rate exceeds \$1.00 per 100 lbs., in which case the shipper will be required to pay the excess.

Before making any shipment please secure these instructions, prices and further particulars, which will be furnished on application.

Canadian Kodak Co., Limited,

Toronto, Canada.

Department S.

PYRO is the best developer for plates and films. This fact is conceded by the best practical workers in the profession.

All developers give color, but in addition to the general color produced by Pyro, a stain image is created beneath the silver image. This stain image is the secret of Pyro quality. The Pyro developed negative may not look beautiful—may not even seem to have sufficient density or contrast, but the quality is there and it will be fully reproduced in the print. And it's the quality of the print that really counts.

Use Pyro in its most cleanly and convenient form—crystals.

Eastman Permanent Crystal Pyro

Is easy to handle—gives off no flying particles of dust—produces negatives of the most perfect printing quality.

Specify Eastman Permanent Crystal Pyro.

Canadian Kodak Co., Limited,

All Dealers'.

Toronto, Canada.

Do You Have Them?

During the recent heavy rush of Christmas trade you could have done your work more quickly and more conveniently, at a saving of financial and mental expenditure, if you had used these helpful accessories:

Eastman Studio Register System

Eastman Scale

No. 1 Majestic Print Dryer

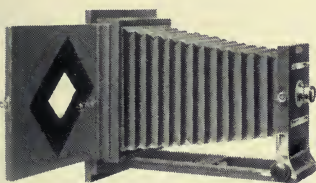
Rounds Print Washer

Your dealer can supply them—write him at once
lest you forget.

Canadian Kodak Co., Limited,

Toronto, Canada

The 8 x 10 R. B. Enlarging Camera

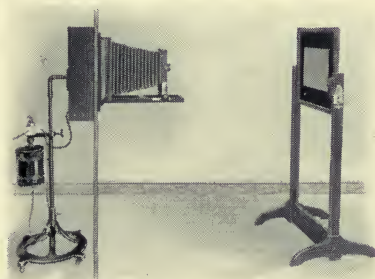
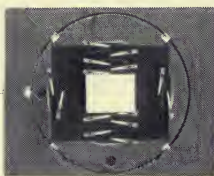


This camera will solve your enlarging problems. It will take glass or film negatives of any size up to 8 x 10. The Revolving Nega-

tive Carrier and rising front allow you to center the enlargement accurately.

The camera has a focal capacity of 22 inches, rack and pinion for focusing, and the lens board measures 5½ inches square.

Send for circular.



Folmer & Schwing Division

Eastman Kodak Co.

ROCHESTER, N. Y.

STYLE BRIGADE

An attractive Folder at a moderate price. For 4x6 Square Inslip Prints.

Colors: Grey, Buff and Brown.



The Brigade is made in the new Panel size, $5\frac{1}{2} \times 10\frac{1}{2}$ outside, for 4 x 6 Square Prints only. It meets the demand for a moderate priced folder and will not conflict with your 7 x 11 size. At the same time it will increase the price on your moderate style work.

The Insert has a neat inlaid design embossed in color. The Cover has a rich shield and scroll design embossed on the flap.

The Brigade is made in three color combinations of stocks very suitable for this class of work.

Sample on receipt of five one-cent stamps.

MANUFACTURED BY

Canadian Card Co., Toronto, Canada.

OUR POLICY

Our business was established on a quality basis. It has grown because we act on the belief that we can maintain our position in the trade just so long as we make better goods than our competitors—and no longer.

During thirty-six years in the photographic business there have been several revolutionary changes. Doubtless there will be many more. Whatever they may be our Policy shall be to furnish (without following every mere will-o'-the-wisp) the very best of those goods which painstaking testing shall prove to be of benefit to our customers in the Simplification of Photographic Processes and the Advancement of the Art.

C. K. Co., LTD.



ARTURA PRINT, FROM AN EASTMAN PORTRAIT FILM NEGATIVE

By Dudley Hoyt
New York



STUDIO LIGHT

— INCORPORATING —

THE ARISTO EAGLE .. THE ARTURA BULLETIN

ESTABLISHED 1901

ESTABLISHED 1906

VOL. 8

FEBRUARY 1917

No. 12

BETTER PROOFS— BETTER ORDERS

There are arguments for and against delivering proofs from retouched negatives, but the arguments against proof retouching do not come from those who have adopted this plan. They have found it profitable.

The same is true of arguments for and against the delivery of proofs made on the grade of paper to be used for the finished prints, or at least a developed proof on a similar grade of paper.

When albumen paper was used almost exclusively, proofs were made on albumen paper. When gelatine and collodion papers were placed on the market, proofs were also made on these papers but they were not toned. It was thought too much trouble and unnecessary.

As higher grade papers were made and higher grade work exploited as the finished product of photography advanced, the

proof stood still. It has stood still until the gap between the two has become so wide that many of the most progressive photographers have decided that it should be closed, that it isn't necessary to deliver a glossy red proof that is guaranteed to fade away before the customer has a good chance to examine it.

As a consequence, some photographers show and deliver proofs that are almost equal to finished prints. The main point is that such proofs have some resemblance to the finished product and are more likely to create a better impression and induce a better order.

Another good point about the delivery of such finished proofs is that they are obviously of value and the customer can understand why he must pay for them if they are not returned. It has always been more or less a mystery to the average, honest-minded layman why the photographer should insist that "all

proofs not returned will be charged for at 50c. each," when to his mind, the blamed things are no good anyway.

On the other hand, it is easy for the customer to understand that a finished print has value and can not be kept unless he pays for it. It is also easy to understand that the photographer keeps returned proofs as a record of negatives from which orders have not been received.

At any rate, the delivery of a good stable proof doesn't make it necessary for you to guard against the possibility of an occasional customer taking spare proofs to your competitor to have them toned, to prevent which it has been customary to use precautions which might be objectionable to other customers.

The possibility of increasing orders is the greatest incentive for proof-retouching and better proofs. A rough proof from an untouched negative is seldom a beautiful thing to show a customer, but a few strokes of the retoucher's pencil will make the proof presentable. You may not know the little things your receptionist can instinctively see will be objectionable to a woman. But she can give a few instructions to your retoucher and a fault is eliminated and a complaint forestalled.

First impressions are always strongest, yet first impressions of the work you do for customers

are made when you show proofs. And these impressions are usually the worst ones received during the entire picture-making transaction.

Because glossy red proofs were delivered in non-actinic red envelopes at one time, and because it was too much trouble and necessitated too much delay to tone such proofs is not sufficient excuse for adhering to an old and threadbare custom.

The proof which makes the best impression and which gives the best idea of the finished work will surely be the means of securing the best orders. And when a variety of negatives are made, good proofs will, in most instances, induce orders from several negatives, which means that the order is usually larger and duplicate orders are more certain.

The "progressive" photographer casts precedent and tradition to the winds, studies the buyer's viewpoint and follows lines of reasoning which will obviously create more business and make better satisfied customers.

The proof is an important part of the business transactions of photography and if poor proofs make good orders difficult to secure, good proofs will make better orders.



*Artura Iris, the paper that
has no rival.*



ARTURA PRINT, FROM AN EASTMAN PORTRAIT FILM NEGATIVE

By Dudley Hoyt
New York





THE PHOTOGRAPHIC EASTER GREETING

ORIGINAL EASTER CARDS

Last year, in our Easter advertising for the photographer, we said:

"Let the Easter card carry the message that lends the personal touch of friendship:
Your photograph."

This was good advertising—photographs as Easter gifts—but why not a bit more individuality for those who like it, and suggest that the photograph for Easter this year take the form of an Easter greeting card?

It's a very clever idea, as we have seen it carried out, the en-

tire card being a piece of Artura Paper, and it would appeal to those who have a desire to be original. Our illustration shows the form of the card, the printed matter and the placing of the picture, though this would be varied to suit the individual.

The example we show is merely a suggestion for the lay-out or placing of the type matter and picture, the wording not being intended as a suggestion for a proper form of greeting. This should be furnished by the individual to carry out the idea of originality and add the personal touch.

The average person sends a number of Easter Greeting cards and it is quite a common thing to have special cards engraved to make them more distinctive.

A great number of photographs are also distributed every year as Easter remembrances, along with an Easter card—so why not combine the two and make an Easter greeting that is specially distinctive.

The card we show is a 9 x 11 piece of B Artura, which is a tough double weight stock, and the print is made on the right hand half of the sheet, which is folded with the picture inside. The photographic work is comparatively simple once a good negative is secured, but exceptional care should be used in the typographical printing.

Follow the ideas of the best printed or engraved cards you can find, and choose a printer to make up your samples and do your work who knows his business. Tiffany Gothic is the style of type we have used for printing, and it is very neat and dignified. The printer will only need to make changes in the greeting and names once the printed matter for the card is decided upon, unless your customer wishes some special matter on the cover, in which case the printer's charge will be slightly greater.

This idea can be worked out in different sized folders, but the originality and effectiveness of

the idea is spoiled if the print is mounted.

We have seen cards with the photograph and season's greeting on the outside and the personal greeting on the inside of the folder. This form permits the prints to be folded wet and dried, while the form we show necessitates that the prints be partially dry before they are folded.

Whether the emulsion side of the paper is outside or inside it is desirable to keep the emulsion and paper as flexible as possible and this may be done by soaking prints for about ten minutes in a solution of one ounce of glycerine to sixteen ounces of water. Prints are not washed after removing from this solution.

The ordinary emulsion is so tough that with reasonably careful handling there is no noticeable tendency to crack.

The negative to be used is placed in a large printing frame and a mask used to cover the entire sheet of paper. When the prints are finished, trimmed and folded, they are sent to the printer, several orders at a time, so that the "Easter Greeting, 1917," can be printed on outside of all the orders alike. The matter on the inside of folders will require a separate printing for each order, as the names and greetings are changed. A band of white ribbon is tied about each card and special envelopes furnished for each.

To offer such photographic Easter cards without printing cheapens the whole idea, which is to give the customer something distinctive and novel. Such an idea carried out properly, as we have seen it carried out, will net you a good profit and considerably increase the size of your Easter orders.

Your customer might ordinarily mail twenty-four Easter cards to friends and include photographs with six of them. Interest the customer in a distinctive photographic Easter card and you will get the order for twenty-four instead of six photographs.

Easter comes on the eighth of April this year so there is just good time for working up such an idea.



*Use Pyro in its most
cleanly and convenient
form—crystals.*

Eastman Permanent Crystal Pyro

*Look for the Tested
Chemical Seal on the
container.*

A PHOTOGRAPHER'S LAMENT

We dearly love to advertise
And try to "Put the people wise"
To all that's daily taking place
On Bell street, where they "set the
pace."

But we've been buried to the eyes
With photographs of every size,
Of every sort and style of face
That Heaven gave the human race
(And some that came from where
they wear

Asbestos hairpins in their hair)
And didn't have the time to write—
So here's just "Hello" and then
"Good Night;"

For now a blond and blue-eyed lass
Is posed before the looking glass,
While Grandmama, sedate and prim,
With brown-eyed Mary, tall and
slim,

Await their turn to "have a look"
And sit to have "their picture took."
A laughing baby, fair and plump,
Keeps everybody on the jump,
Until at last by happy chance
We dodge the sisters and the aunts
And see a smile too sweet to last
And catch the sunshine tight and
fast;

A country boy; a social star;
A leading member of the bar;
A blacksmith from the shops, you
know;

A ballet dancer from the show—
"Doctor, Lawyer, Merchant, Chief,
Rich Man, Poor Man, Beggar Man,
Thief"—

In quick succession come and go,
Like "movie" actors in a show,
Until our nerves are smashed to
slush,

All on account of the Christmas
Rush.



ARTURA PRINT, FROM AN EASTMAN PORTRAIT FILM NEGATIVE

By Dudley Hoyt
New York



And this aint half, what you folks
see,

We sit up nights till half past three—
Develop and wash, retouch and spot,
Print and mount, and the Devil
knows what;

We mix new baths and dump the old,
And try to forget our feet are cold,
Try to remember the films we've
sold,

Try to forget the fibs we've told,
Try to forget we're getting old.
But of all the "gets" this gets us
worst,

They all want to get THEIR pic-
tures FIRST:

Well, we get to bed when the rooster
crows

And jump and scoot when the whis-
tle blows.

We grab our breakfast on the run,
We eat our batter cakes half done,
We don't get lunch till after one,
And then but little, or maybe none,
And smile all the while like we
thought it was fun.

We don't get time to shave or wash
Nor hardly to change our socks, by
gosh;

But here's the FUN: We got 'em
DONE:

Every bea-u-ti-ful, bloomin' one.

We got our money and bought some
meat,

And now we're too blamed tired
to eat;

If we had any brains, they're gone
to mush,

All on account of the Christmas
Rush.

—*Brooks, Photographer,
Shawnee, Okla.*

We wonder if the "Photographer in your
town" stuff contributed to the rush.—Ed.



REPRODUCING STAIN- ED NEGATIVES

A great many photographers think of panchromatic plates only as a means of photographing difficult subjects where it is desirable to secure a correct rendering of various colors in monochrome. Panchromatic plates are equally useful in securing an incorrect rendering of certain colors when the result in monochrome is more satisfactory, but in any case color filters are necessary. It is not possible to make a panchromatic plate that is not more sensitive to blues than to other colors, so this correction must be made with a filter when the negative is made.

There are two kinds of color filters, orthochromatic filters and contrast filters. The orthochromatic filters of the Wratten series are designated as K.1, K.2 and K.3. The K.1 gives a slight color correction, K.2 considerably more, and K.3 correct rendering of all colors in proportion to their relative brightness.

The proportionate correction is determined by the amount of blue light these filters absorb, and as the plates are very much more sensitive to blue than to other colors, the entire surplus of blue light must be absorbed to give absolutely correct rendering. This necessitates a considerable increase in exposure so that the lighter K.1 and K.2



ARTURA PRINT, FROM AN EASTMAN PORTRAIT FILM NEGATIVE

By Dudley Hoyt
New York



filters are used where absolute correction is not necessary, and the darker K.3 filter only for correct rendering.

Filters of a greater depth of color are known as contrast filters and will make certain colors appear lighter or darker, such incorrect rendering often being desirable in commercial photography. This has been illustrated in copying prints yellowed with age or stained.

The yellow portions photograph as black with an ordinary plate. With a K.3 filter and panchromatic plate the yellow markings photograph exactly as they look, but with a dark G. filter the yellow photographs as white and the resulting negative is as clean as though a fresh print had been copied.

The same use may be made of the green and red filters, especially the deep red which causes red objects to photograph as white, provided they are not too dark or the red does not contain black, as is often the case in some forms of printing or lithographing. Letters or documents containing notations or stamps in red ink, however, can be photographed with the deep red filter without any indication of the red ink marks showing in the negative.

The special use we have in mind for a panchromatic plate and contrast filter is for reproducing valuable negatives that

have become so badly stained that they are useless for printing.

Negatives become stained in various ways and sometimes these stains cannot be removed by chemical treatment without injuring the silver image. It is useless to try to print from them, but it is a very simple matter to reproduce them, provided the chemical that made the stain has not removed a portion of the silver image, and this is not often the case.

A positive made through the strong Wratten G. filter on a panchromatic plate will show no trace of the yellow stain. It is then a simple matter to make a negative on a Seed 23 plate from the positive, by contact, if the positive is of the desired size.

Using one of the regular Wratten filters will necessitate making the positive in the camera, but contact positives of stained negatives may be made by using a piece of gelatine filter film large enough to cover the entire negative.

The film is not expensive (10c per square inch, about), but care should be used in handling it. It is stained gelatine, stripped from the glass support on which it was coated, and without a support it must be kept absolutely dry to retain its form.

One does not have stained negatives to contend with every day, but there are very few studios in which a valuable nega-



ARTURA PRINT, FROM AN EASTMAN PORTRAIT FILM NEGATIVE

By Dudley Hoyt
New York



tive is not at some time unavoidably marked for life. Whether it is a red, a green or a yellow stain, the red or green or yellow filter will miraculously cause it to vanish as the positive is made on the panchromatic plate.

It must be a panchromatic plate, however, for its sensitiveness to red and green and yellow is the secret of the many seemingly miraculous things that may be accomplished with Wratten Plates and Filters.

Many other advantages in the use of Wratten Plates and Filters are explained in the booklet "Color Plates and Filters for Commercial Photography" which we will be glad to mail you free on request.



*Better enlargements sell
in greater quantities
at better prices.*

Enlargements on

**Artura
Carbon
Black**

*are better enlargements
because they retain the
contact quality.*

OUR ILLUSTRATIONS

While we are interested in the success of the profession collectively and individually, we may be pardoned for having a special interest in one who has made his success in Rochester and repeated it in New York.

There was little question as to what the result would be when Mr. Dudley Hoyt decided to move from Rochester to New York. And there was little question as to his reception by New York professionals.

His reputation was sufficiently established as a thorough workman and a man of business, to guarantee the success he would make in the metropolis.

His choice of a location on Fifth Avenue showed good judgment, for his work had the quality to back it up. The location of the Hoyt studio was out of the business section, but in the very heart of the best residential district, surrounded by the homes of New York's exclusive social set. It was the ideal location for the Hoyt studio because it was this class of people to whom his beautiful portraits would have the strongest appeal. And instead of growing away, business has gradually crept up the Avenue until it has surrounded him.

The furnishings of the studio are in excellent taste and include many valuable pieces of furniture,



ARTURA PRINT, FROM AN EASTMAN PORTRAIT FILM NEGATIVE

By Dudley Hoyt
New York



rugs and objects of art that add to the attractiveness of the quiet and dignified interior.

He has always been very much interested in National and State Convention affairs and was one of those instrumental in organizing the Professional Photographers' Society of New York. He is also a prominent figure in National Conventions and is always willing to do his part towards making them a success, though in a very modest and unassuming way.

A portrait by Dudley Hoyt has almost the same amount of individuality as a portrait by Gainsborough or Reynolds. His style might be called idealistic, but it is distinctly and individually his own and not an imitation. And because it is an idealistic style it is especially pleasing to women.

The Hoyt portrait will idealize a plain woman—will accentuate all that is beautiful without losing the one thing that is essential—the likeness. And the woman that has been favored with beauty will lose none of it in a Hoyt portrait.

Mr. Hoyt was one of the early friends of Artura and has used this paper for all of the excellent work he has produced in recent years. Our illustrations are from Artura prints from Eastman Portrait Film negatives.



DEVELOPER STANDARDS

The war had not been going very long before the photographer discovered that the chemicals most necessary in his business were imported from foreign countries, notably Germany, and that those of domestic origin were few and of the least importance at that.

Developing agents, most vital in photography, rapidly became scarce and prices almost prohibitive. Where standards had to be maintained there was no limit to the price a photographer would pay for certain developers if he were fortunate enough to find any for sale.

With such a scarcity of chemicals and such an opportunity for high prices it is not surprising that many substitutes were offered, some with extravagant claims for equality at least, and often for superiority over the pre war favorites. Prices, of course, were charged accordingly and good money was paid for some low priced substitutes.

It is undesirable that the essential chemicals in photography should be exploited in this manner and it will be interesting perhaps to know how the Eastman Kodak Company—who have many developers offered them, decides upon the merits of a substance for which developing qualities are claimed.



ARTURA PRINT, FROM AN EASTMAN PORTRAIT FILM NEGATIVE

By Dudley Hoyt
New York



To be passed by the Kodak Research Laboratory, a developer has to undergo a very searching examination and must measure up to a very exact standard. From the following it will be readily seen that a developer is not a guess work mixture.

A chemical which is claimed to be a developing agent is handed to a chemist, and chemists by training are naturally suspicious, always in a "show me" state of mind. The first thing he does with the would be developer is to compare its physical properties with the required standard. It must be without an appreciable odor—a strong smelling developer is not desirable. It must be light colored and it must dissolve readily in hot and cold water and in solutions of carbonate and sulphite of sodas. Its solubility in the last two should be at least 150 grains in 35 ounces of water, preferably 300 grains.

Experiments are then made, using the substance as a developer with and without an alkali (carbonate or caustic) the results being carefully noted.

For exact tests all developers are made up so that they will contain the same relative amount of the developing agent. Standard amounts of sulphite and alkali are also used. The developer is first tried without any bromide and then with different concentrations of bromide. One of the most important characteristics of

a developer is its susceptibility to bromide. Along with the rapidity with which it oxidizes, it is the principal factor in determining the efficiency of a developing solution. Different developing agents are affected to different degrees and in different ways by bromide. There is a very complete method of investigating this. Thus of the well known developers—Hydrochinon, Elon, Pyro, Tozol, Amidol, Paramidophenol, Kodelon, many are of a like nature. But, as is well known, hydrochinon is most affected by bromide, if all are used at relative strengths and with like amounts of alkali. In many cases the behavior of a developer toward bromide is sufficient to isolate the substance from others of a rather similar photographic quality.

All the tests are made on a standard emulsion with which all the best developers have been used. This emulsion is coated very evenly on strips of special plate glass.

Development is carried out in a water jacketed tube maintained at a temperature of 68° F. by a thermostat and centrifugal pump. In most cases the strips are developed in total darkness.

The exposures are on a known and accurately checked scale, increasing by powers of two, that is, each exposure is twice the preceding one. The development is carried on for different times,



ARTURA PRINT, FROM AN EASTMAN PORTRAIT FILM NEGATIVE

By Dudley Hoyt
New York



ranging from the first appearance of the image to practically complete development which, with some developers, may take hours.

The above set of experiments provides a great deal of information about the substance, which, when fully interpreted, permits a determination of its usefulness for certain kinds of work. The strips when dry are measured for the density corresponding to the different exposures. This is carried out in a modified photometer and the values obtained are used for determining the efficiency of the developer under different conditions.

Contrast is plotted against time of development and the speed of the reactions determined. The greatest amount of contrast and density obtainable are noted and compared with certain standards. The speed and latitude of the plate with the given developer are important factors. The growth and distribution of fog can be seen from the above series of plates. The relation between dilution and time of development for a standard contrast is found by further experiments.

The behavior of a developer with change of temperature is important and varies greatly with different substances. To determine this, development is also carried out at a lower and a higher temperature than the standard temperature of 68° F.

The penetration of the developer and the depth at which most of the silver grains lie in the gelatine is seen from microscopic sections cut through the film.

An important point in a developer is its keeping quality both before and after use, and this is carefully measured in a standard way. This is especially important in motion picture work where the film is developed on a reel and exposed to the air much of the time.

The color of the image and any staining properties are carefully noted.

If a developer is thought to be suitable for paper, similar, but more limited experiments are carried out and its performances are watched as closely as when developing plates.

From the nature of the tests outlined it is seen that a developing agent must fulfill rather strenuous requirements.

With the present unsettled conditions and with prices much above normal, photographers should not be led away by extravagant and unfounded claims. If they are not in a position to determine the quality and quantity of work produced by a certain developer they should rely on the product of a manufacturer who has safeguarded their interests by offering only those developers which have passed the most exacting requirements of laboratory and practical tests.

Modern
Portraiture



A few interesting facts about

THE PYRO STUDIO

Suggestion for the cover of a small advertising folder, using half-tone cut No. 234.
Price, 60 cents. This cut is not suitable for newspaper advertising.



MOST things can
be anybody's
gift—your portrait
is distinctively, ex-
clusively *yours*.

*Make that
appointment
to-day*

THE PYRO STUDIO

Line cut No. 234. For Newspaper advertising. Price, 50 cents.

THE ONLY CONDITION

We make but one condition in our offer of cuts for the use of photographers.

It is obvious that two photographers in the same town would not care to use the same cut, and we are therefore obliged to limit this offer to one photographer in a town. It will be a case of first come first

served. The first order from a city will be promptly filled. Succeeding orders (if any) will necessarily be turned down and the remittance, of course, will be returned. It is also obvious that we cannot, on account of the cost of the drawings, furnish any large variety of cuts at the nominal prices quoted, and therefore can offer no substitute cut. Get your order in *first*. C. K. CO., Ltd.

BULLETIN: THE EASTMAN SCHOOL OF PROFESSIONAL PHOTOGRAPHY FOR 1917



Syracuse, N. Y.	February 13, 14, 15
Cleveland, O.	February 20, 21, 22
Cincinnati, O.	February 27, 28, March 1
Detroit, Mich.	March 6, 7, 8
St. Louis, Mo.	March 14, 15, 16
Indianapolis, Ind.	March 20, 21, 22
Chicago, Ill.	March 27, 28, 29



To Guess or Not to Guess

That is the question you must settle in regard to the temperature of your solutions.

Thermometers

enable you to be certain on this essential point. There's the *Eastman Thermometer* fitted with a convenient hook for use with the tank—price 60 cents. And you can also have a combination of two in one—the Thermometer Stirring Rod, made of good glass—price 75 cents.

Canadian Kodak Co., Limited,

Toronto, Canada.

At Your Dealers'

THE EASTMAN FOCUSING CAP

For Enlarging Cameras

is designed to aid in composing the image properly. Consists of a block with an opening in the centre to admit the lens barrel, the same being adjustable to different sizes.

The front edge of the block contains a slide with two apertures, one of which is covered with ruby glass as a safeguard when the paper is being placed, the other aperture being uncovered.

After composing the image on the paper by the *safelight* coming through the ruby glass, make the exposure by sliding the uncovered aperture before the lens.

THE PRICE

No. 1—For lens barrels of $1\frac{1}{2}$ to $2\frac{1}{4}$ inches diameter \$.75

No. 2—For lens barrels of $2\frac{1}{4}$ to 3 inches diameter 1.00

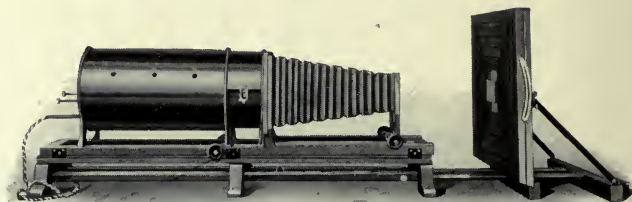
No. 3—For lens barrels of 3 to $3\frac{7}{8}$ inches diameter 1.50

Canadian Kodak Co., Limited,

Toronto, Canada.

All Dealers'.

Don't overlook the big profits of the enlarging business.



We have increased the efficiency of the

EASTMAN ENLARGING OUTFIT

by equipping it with a lamp giving double the volume of light of that formerly used.

Mazda Nitrogen Lamp, 500 Watt—lamp and reflector adjusting screws outside of lamp-house—camera and lamp-house on roller bearings and fitted with quick acting lock nuts—10-inch condensers affording perfect illumination of 5 x 7 negatives—revolving adjustable negative carrier—drop front and hinged back easel and full set of kits to 20 inches—these are a few of the features of the Eastman Enlarging Outfit.

THE PRICE

Eastman Enlarging Outfit, complete with lamp,	
but without lens	\$100.00
Planatograph Symmetrical Lens, 8-inch focus,	12.00

EASTMAN KODAK COMPANY,

All Dealers'.

ROCHESTER, N. Y.

The New Developer:

KODELON

(Paramidophenol-Hydrochloride)

An economical and highly successful developing agent, used in connection with Hydrochinon, for all developing-out papers.

It bears the Kodak Tested Chemical Seal.

THE PRICE

1 oz. bottle	. . . . .	\$ .90
$\frac{1}{4}$ lb.	“	3.25
$\frac{1}{2}$ lb.	“	6.25
1 lb.	“	12.00

Canadian Kodak Co., Limited,

Toronto, Canada

All Dealers'.

WANTED

DISCARDED NEGATIVES

We purchase discarded negatives of standard sizes from $4\frac{3}{4} \times 6\frac{1}{2}$ to 20×24 , providing same are in good condition and are carefully packed in accordance with our instructions.

We will pay all the freight on shipments of 100 lbs. or more, except from localities where the freight rate exceeds \$1.00 per 100 lbs., in which case the shipper will be required to pay the excess.

Before making any shipment please secure these instructions, prices and further particulars, which will be furnished on application.

Canadian Kodak Co., Limited,
Toronto, Canada.

Department S.

TOZOL

The Complete Developer

Requires the addition of no developing agent. It's right just as it is, and is prepared exactly as it was before the war.

The correct developer for Artura, Azo and Velox.

Note the Reduced Price

1 oz. bottle	\$ 1.10
¼ lb. bottle	4.00
½ lb. bottle	7.75
1 lb. bottle	15.00

Canadian Kodak Co., Limited,

Toronto, Canada.

At your dealer's.

PYRO is the best developer for plates and films. This fact is conceded by the best practical workers in the profession.

All developers give color, but in addition to the general color produced by Pyro, a stain image is created beneath the silver image. This stain image is the secret of Pyro quality. The Pyro developed negative may not look beautiful—may not even seem to have sufficient density or contrast, but the quality is there and it will be fully reproduced in the print. And it's the quality of the print that really counts.

Use Pyro in its most cleanly and convenient form—crystals.

Eastman Permanent Crystal Pyro

Is easy to handle—gives off no flying particles of dust—produces negatives of the most perfect printing quality.

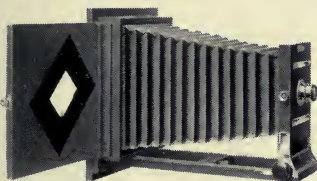
Specify Eastman Permanent Crystal Pyro.

Canadian Kodak Co., Limited,

All Dealers'.

Toronto, Canada.

The 8 x 10 R. B. Enlarging Camera

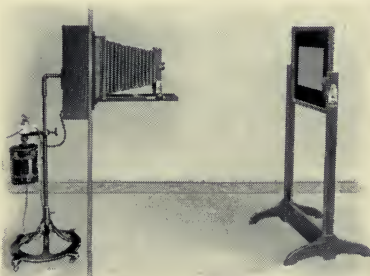
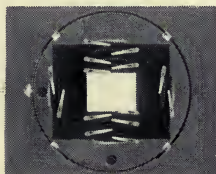


This camera will solve your enlarging problems. It will take glass or film negatives of any size up to 8 x 10. The Revolving Nega-

tive Carrier and rising front allow you to center the enlargement accurately.

The camera has a focal capacity of 22 inches, rack and pinion for focusing, and the lens board measures 5½ inches square.

Send for circular.



Folmer & Schwing Division

Eastman Kodak Co.

ROCHESTER, N. Y.

THE ILIAD

A "Corner Holder" Style for Sheet Portraits

For 4 x 6, 5 x 8 and 6 x 10

Colors—Grey, Sepia-Buff and Dark Brown.



The Iliad

is the most attractive and popular folder on the market to-day. The advantages of this style, for sheet portraits, over the ordinary corner holder style is that while in the regulation style the corners are flush with edges of cover, giving the print a rather crowded look, in the *Iliad*, a delicately duo-tinted border blends harmoniously with tone of print, giving a larger and also a newer look to sheet portraits.

If you have not seen this style, don't fail to send for sample to-day.

Sample of One Size Mailed Free.

MANUFACTURED BY

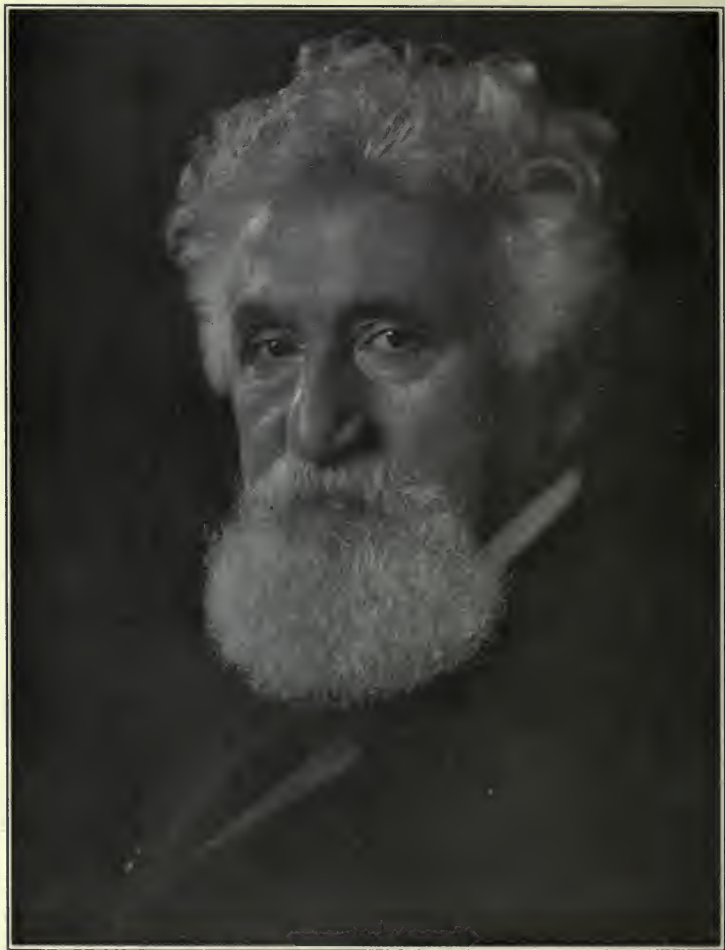
Canadian Card Co., Toronto, Canada.

OUR POLICY

Our business was established on a quality basis. It has grown because we act on the belief that we can maintain our position in the trade just so long as we make better goods than our competitors—and no longer.

During thirty-six years in the photographic business there have been several revolutionary changes. Doubtless there will be many more. Whatever they may be our Policy shall be to furnish (without following every mere will-o'-the-wisp) the very best of those goods which painstaking testing shall prove to be of benefit to our customers in the Simplification of Photographic Processes and the Advancement of the Art.

C. K. Co., Ltd.



FROM AN ARTURA IRIS PRINT

*By Campbell Studio
New York*



STUDIO LIGHT

— INCORPORATING —

THE ARISTO EAGLE · THE ARTURA BULLETIN

ESTABLISHED 1901

ESTABLISHED 1906

VOL. 9

MARCH 1917

No. 1

HANDS

Hands play a very important part in expression. As an index of character they have always been given a very high place by portrait painters, but it can not be said that many photographers have given them the same degree of attention.

The tendency has been to hide the hands as much as possible rather than exploit them as a means of getting more character into the portrait. This is due, no doubt, to the difficulty in preventing distortion when they happen to be nearer to the camera than the sitter's face. The trouble is not with the position of the sitter but the position of the camera. And this, in turn, is due to the fact that a lens of too short a focus is used.

The distortion of hands has been referred to so often that many sitters have the impression that "big hands" can not be avoided in a photograph. The photographer does his best not

to show the hands at all or to keep them near the body, and the picture often reveals the fact that he has had considerable difficulty in posing. There is stiffness and awkwardness in the attitude and uneasiness in the expression—the face seems terribly conscious of the hands.

If you are very observing you will have ample opportunity to see how others treat hands in their photographs, for nearly every magazine and Sunday paper have pages devoted to pictures of people who are prominent in public life, and many of these pictures have been made by our best photographers.

Note the hands of the artist or musician and compare them with the hands of the man who fought his way to the front in business or politics. It is not always the shape of the hand either. The pose indicates character in an equal degree, as will often be seen in the natural pose of the musician's or artist's hands.

Once a photographer fully realizes the value of hands in a portrait he soon sets about the task of overcoming the difficulties in rendering them. He can not make full use of hands if he has to work in a confined space with a short focus lens, this is certain. It is absolutely necessary to be at a good distance from the sitter and a long focus lens is absolutely essential.

Once the hands have a natural and characteristic position look to the way they are lighted. They should not appear as two spots of light claiming equal attention and fighting against the highlights of the face for first place in the picture.

The face should always claim attention first, for it is of greatest importance in depicting the character of the subject. The hands, while subordinate to the face, are of next importance and offer an excellent means of balancing and adding attractiveness to the composition of the picture, as well as expressing the character of the sitter.

If the space under your light permits you to work at a considerable distance from your subject, and you have not used this decided advantage because you are not the possessor of a long focus lens, get one, if only on trial, and see what a decided improvement it will make in the character of your results, especially as regards hands.

NATIONAL CONVENTION, 1917

The Executive Committee of the Photographers' Association of America met in Milwaukee, Wis., Jan. 22, 23, 24 and 25, to discuss plans for the convention and the Association work for the year.

September 3 to 8 were selected as the dates for the coming convention. The auditorium, which is one of the finest convention halls in America, was selected for the meetings and exhibits. A large arena with over 22,000 square feet of space will be used for the exhibits of the manufacturers and dealers. Several meeting rooms with capacity of 500 to 1,200 people will be used for demonstrations, meetings and the picture exhibit. All space necessary for the requirements of the convention will be found on one floor of this great auditorium.

The program will include the usual demonstrations and lectures.

The same plan regarding the picture exhibit will prevail as those which have maintained during the last two years.

Provisions will be made for a special exhibit of pictorial and illustrative photographs.

The entertainment features of the program are well taken care of. The entire afternoon of the second day of the convention



FROM AN ARTURA IRIS PRINT

*By Campbell Studio
New York*



will be given over to a "get-together" meeting where all formality will be broken down and each one will be given the opportunity of getting thoroughly acquainted with every other member attending the convention. It is also planned to have a banquet near the close of the convention.

The Women's Federation will be given a special number on the program and the officers of the Federation have promised to make every visiting lady feel at home and to assist in other ways to make the convention a success.

The following committees were appointed:

Advisory

Simon L. Stein, Ben Larrimer,
W. H. Towles.

Auditing

Simon L. Stein, C. L. Lewis,
Howard D. Beach.

Legislative

George W. Harris, Ben Larrimer,
Alva Townsend.

Membership and Credentials

Will H. Towles, Waller Holliday,
Clarence Stearns.

Ways and Means

Geo. Holloway, Cicero Reeves,
A. H. Diehl.

Copyright

John I. Hoffman, Geo. W. Harris,
William H. Rau.

Publicity

Simon L. Stein, J. B. Banks,
L. Austin.

Entertainment

J. C. Abel, Frank S. Noble,
Geo. W. Toppliff, Richard Salzberger,
Ernest Cramer, E. T. Long,
J. A. Dawes, J. A. Bangs,
L. Austin, J. T. Fenner,
J. A. Cameron.

J. I. HOFFMAN,
Secretary.



BEST FOR THE PURPOSE

Any new product when first introduced is more or less of an experiment no matter how carefully and thoroughly it has been worked out.

This was the case with Eastman Portrait Film; we had put in months and months of investigation and experiment before we introduced it to the profession. We knew it was right for its purpose, but the professional naturally did not; it was to him still an experiment.

So under the circumstances, we could scarcely expect him to rush to the nearest dealer's and order a supply of film-holders, which, so far as he knew, might soon have to be discarded.

We did want him to try Eastman Portrait Film because we knew he would like it and use it, and so as a compromise we offered the Eastman Portrait Film Sheaths by means of which the Portrait Film could be used in the regulation plate-holder.

At best the Film Sheaths are



FROM AN ARTURA IRIS PRINT

*By Campbell Studio
New York*



a compromise, and their use deters the professional from enjoying two important advantages in the use of Portrait Film—compactness and lightness. The Eastman Portrait Film Holders are much lighter and more compact than the ordinary plate-holder and do not require sheaths. In the larger sizes the Eastman Portrait Film Holders effect a material saving in weight and entirely obviate the chance of the film buckling or not lying perfectly flat.

With Eastman Portrait Film an established success, we believe that the man who gives film a fair trial will use it, and that the small additional cost of the Film Holders is more than offset by their additional convenience.

Eastman Portrait Film Holders are furnished in two styles—No. 1 to fit Century Cameras and Century Studio reversible backs, No. 2 to fit Universal, Eastman and Premo View Cameras.

PRICES

5	x	7	.	.	.	.	.	\$1.00
6½	x	8½	.	.	.	.	.	1.10
8	x	10	.	.	.	.	.	1.25
7	x	11	.	.	.	.	.	1.25
11	x	14	.	.	.	.	.	4.00

Sterling Portrait Film Holders to fit the F. and S. Home Portrait, Sky Scraper Camera and F. and S. Commercial Camera.

PRICES

8	x	10	.	.	.	.	.	\$2.50
11	x	14	.	.	.	.	.	6.00

Prices f. o. b. Rochester, N. Y.

A PRACTICAL ALBUM FOR PORTRAITS

You may be interested in all things pertaining to photography, but you are most vitally interested in the things that will make more business for your studio.

One of the best business-getters that ever worked for the photographer was the old family photograph album. So long as there was a vacant space between its covers it invited more photographs, and when it had been filled a new album became a necessity.

The album idea has never gone out of style, but the old portrait album for cabinet sized prints was put out of business because it had limitations—it was not elastic enough to accommodate the great variety of styles and sizes of prints that followed the doom of the cabinet picture.

Photography had to expand, but the family album was unable, of itself, to do this. And not being a direct product of photography, it has been neglected and its value from an advertising and business-creating standpoint has, for a time, been lost.

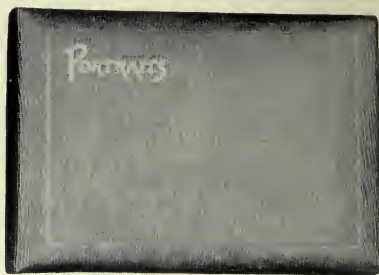
I can recall the advent of the photograph album in the old home—can remember the interest aroused by the arrival of pictures of Aunt Kate and Uncle Will whom we had never seen and who only existed in our imaginations, until those pictures arrived.



FROM AN ARTURA IRIS PRINT

*By Campbell Studio
New York*





Eastman Portrait Albums

And then we became the most energetic collectors of portraits. We filled that album and another in our efforts to make our picture record of the family history complete.

Those old albums still exist. The pictures are still in good condition, but what has become of recent pictures of family and friends? I have some in an old trunk in the attic—a few more in a box of old books—I found several recent ones in the drawer of a library table, and there are three small ones framed and several more received during the holidays lying loosely about—they won't stand up.

My experience is not the exception but the rule. I have asked others and their experience is the same—and invariably they have wished they might have a way of keeping photographs—have wished for the re-

turn of the photograph album in a practical form that would meet present day requirements.

The Eastman Kodak Co. has worked out a practical photograph album that will take 87% of the various prints that are now being made by professional photographers. It is substantial and dignified looking—is bound in black, long-grained leather and has the one word "Portraits" hot pressed in gold leaf on the front cover. It is in faultless taste and is as well-made and as good as it looks.

The three styles of leaves have been cleverly designed to take seven different sizes of prints in three different sized openings. This is accomplished by placing mats back of the openings. The album is then made up of twelve leaves, assorted, with spacers between, and these spacers may be removed and twelve additional



Vertical Album, Showing Arrangement of Mats

leaves added without increasing the thickness of the back of the album.

The albums are made in both horizontal and vertical shapes, the former $10\frac{3}{4} \times 15$ inches and the latter $12 \times 13\frac{3}{4}$ inches. The three styles of leaves are furnished for each and are designated as H. 1, H. 2 and H. 3 and V. 4, V. 5 and V. 6.

The H. 3 and V. 6 leaves have square openings $7\frac{1}{4} \times 9\frac{1}{4}$, back of which is a mat for a 6×8

oval. An 8×10 print can be placed directly back of the $7\frac{1}{4} \times 9\frac{1}{4}$ opening, or a $6\frac{1}{2} \times 8\frac{1}{2}$ print back of the oval mat.

The H. 2 and the V. 5 leaves have $4\frac{1}{4} \times 6\frac{3}{8}$ square openings, back of which are two mats with $3\frac{1}{2} \times 5\frac{5}{8}$ square and $3\frac{3}{8} \times 4\frac{7}{8}$ oval openings.

The H. 1 and V. 4 leaves have 3×5 square openings, back of which are $2\frac{3}{4} \times 3\frac{1}{4}$ oval mats.

The album is furnished with twelve leaves for assorted sizes



Horizontal Album, Showing Arrangement of Mats

of prints, but as extra leaves may be added or any of those in the album removed, it may also be arranged for all large, medium or small prints, as the customer desires. The leaves are in neutral tones of gray and tan and are suitable for black and white or sepia prints.

Fully 90% of all portraits are inserted in folders or loosely tipped on the mounts, and it is a very simple matter to detach and place them in the album where they have a permanent home.

Attached to the inside of the back cover of the album is a portfolio for carrying loose prints.

Write your dealer at once for information as to prices at which he can supply these albums. It will certainly be to your interest to push the sale of these albums to your customers, and the more of them you are able to place in use, the greater will be the stimulus given to photography.

It is human nature to wish a thing complete, and a portrait album is never complete until it is filled. Once filled, the twelve extra leaves the album will hold allow for its expansion to double its original capacity.

Your dealer has the Eastman Portrait Album in stock and will be glad to show it.



OUR ILLUSTRATIONS

To conduct a big New York photographic business profitably one must have a keen grasp of business affairs, and to successfully continue and enlarge that business—to photograph the same people from the same exclusive social set, year after year, at the same time enlarging that clientele, speaks well for the work as well as the management of such a studio.

In 1911 the Campbell Studio opened spacious quarters in the Waldorf Astoria, but after three years found that they needed more room to carry on an ever-increasing business, so moved to their present location at 538 Fifth Avenue.

A suitable location on Fifth Avenue, however, does not always permit of ideal skylight conditions, and unless one can go to the roof, a north light can not always be had for the asking. The Campbell Studio is making beautiful pictures under conditions that have always been deemed by photographers most impractical. A straight east side light is used.

The Campbell Studio has not overlooked the importance of an ever-growing demand for portraits in the home and has specialized in this line of work. The result has been an increase in business for 1916 over any previous year and prospects of a still greater business for 1917.



FROM AN ARTURA IRIS PRINT

By Campbell Studio
New York



Mr. H. S. Barnard, who is responsible for the able management of this studio, has made it his aim to have the work and the service of the Campbell Studio please its patrons in every way. The examples of work shown in this number of *STUDIO LIGHT* are characteristic of the portraits made by this studio, the reproductions being from Artura prints.



EASTER ADVERTISING

It's time you had your Easter advertising under way, for we assume that you are going to advertise for Easter business. With the exception of the Christmas holidays there is no more opportune time to advertise for portrait business than during the month preceding Easter.

Easter ushers in the Spring season. At this time the average woman's purse strings are loose—she is in the mood to buy, and does buy those things dictated by fashion as necessary for her proper adornment for Easter Day.

What better time could there be for advertising portraiture? Loose purse strings—the new Easter finery and the occasion for some little personal Easter greeting offer sufficient arguments for a strong line of advertising that should create business.

Our Easter advertising for the photographer will appear in three of the leading women's maga-

zines, the *Ladies' Home Journal*, *Woman's Home Companion* and *Pictorial Review*, for April, all of which are on the news-stands early in March. They are magazines that women look to for Easter suggestions—they were selected by us for this reason—and our suggestion in these magazines will be:

At Easter-tide

Your friends can buy anything you can give them—except your photograph.

There's a photographer in your town.

Eastman Kodak Company
Rochester, N. Y.

The combined circulation of these magazines for the one issue is over three and one-half million copies. This will materially help to increase Easter business, but as we have said before, and our experience bears us out, the photographer who advertises locally will get the greatest benefit from this advertising.

We can create a demand by general magazine advertising but



FROM AN ARTURA IRIS PRINT

*By Campbell Studio
New York*



we can't control it or direct it. You must do this by your own advertising. And the better your advertising, the more perfectly will it supplement our efforts.

One selling argument doesn't always make a sale, so don't depend upon our advertising to actually deliver customers to you just because you say in *your* advertising: "John Smith is the photographer in your town."

It doesn't cost any more to tell people why they should have photographs made. For example:

"Make your Easter Greeting a personal one. Your photograph will add individuality to your message of thoughtfulness and good will."

This is positive, creative advertising that should make business if it reaches the people who are able to buy.

If you use the newspapers, make your advertising as attractive as possible. A line cut such as shown on page 23 will help to do this. If you use a select mailing list, a half-tone cut showing an example of your best work will make a small advertising folder attractive, providing it is a *good* half-tone from a *good* photograph, well printed on *good* paper.

Failing any one of these it is better to use an illustration similar to the one we show on page 24. This is a half-tone from a drawing and the screen is coarser than is practical in a half-tone from a

photograph. It is also easier for the printer to secure a good result on good paper, and there is no excuse for using any but a good paper.

The point is to have your advertising attractive enough to insure its being read. The less you say and the more forcefully you say it, the better and deeper will be the impression created.



CORRECTING DISTORTION WITH THE NEW MODEL EASEL

The form of distortion which comes from a failure to keep the plate in a perpendicular plane can be readily corrected in enlarging or in making prints the same size as the negative, using an enlarging camera. It is best to prevent the distortion by making proper use of the swing back when the negative is made, but this is not always done and sometimes is not practical.

In portraits made by studio and home portrait workers, one occasionally sees pictures in which there are straight lines that should be parallel, but failure to use the swing back in a proper manner has caused their distortion.

The distortion may be present whether there are straight lines or not, but straight lines of doorways, windows or furniture, encountered in working in the home, have made this distortion more



FROM AN ARTURA IRIS PRINT

*By Campbell Studio
New York*



often noticeable and its correction more desirable.

When a commercial photographer photographs a building from the street level he usually finds it necessary to raise his lens board and tilt his camera. He uses the swing back to keep his plate parallel with the building and stops his lens down to get the top as well as the bottom of the building in sharp focus.

The portrait photographer who uses a short focus lens deliberately throws his ground glass out of a perpendicular plane to prevent the distortion that would be noticeable when the hands and feet of a sitter are nearer the camera than the head and shoulders.

In such a case, straight lines in the background are sure to be distorted. This use of the swing back is unnecessary when a long focus lens is used, but this is not always possible in home portraiture. In photographing sitting figures, straight lines in the background should be avoided, or, if this is not possible, a side view of the body should be made so the feet and hands will be in the same plane as the head and shoulders. This permits the plate to be kept in a perpendicular plane, allows the lens to be used at a large aperture and avoids both the distortion of the straight lines and the figure.

The portrait worker has avoided straight lines for so long that

he often becomes careless and produces distortion when it could just as well be avoided by straightening the swing back on his camera.

In such cases this can be corrected or improved by a reverse swing of the enlarging easel in making prints by projection instead of by contact. And since Artura Carbon Black is supplied in surfaces that correspond with those supplied in Artura Iris, prints made in this way are fully as satisfactory as contact prints.

If the camera swing-back is used to prevent distortion of a sitting figure, straight lines in the background will surely be distorted. And if the enlarging easel is swung away from a perpendicular line to correct the distorted lines, the prints will show distortion of the figure. An improvement can be made only by a partial correction or compromise.

But if the negative has been made with the plate tilted at an angle and *unnecessary* distortion produced, then it is a simple matter to entirely correct this by making prints by projection with the paper easel tilted.

The solid lines in our diagram show the camera with plate tilted, as is the case when perpendicular lines of the subject are distorted. Imagine the solid lines running from plate to subject are rigid wires. Also imagine that you can swing the back of the camera



FROM AN ARTURA IRIS PRINT

*By Campbell Studio
New York*



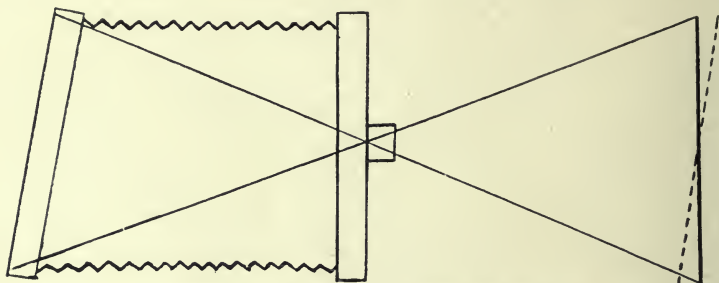


Diagram Showing Method of Correcting Distortion

into a perpendicular plane and you can see that you would draw the subject into the position indicated by the dotted line which is the position for the easel to correct the distortion. Look at the diagram upside down for the opposite form of distortion and method of correcting same.

The distortion most often encountered is in photographs of buildings, but the careful commercial worker avoids this as a rule. It is in making enlargements or lantern slides for the trade that the worst cases are encountered and there is seldom a case in which a correction of this fault will not be welcomed by the owner of the negative. In fact, the writer knows of a case where the correction of distortion in making a few lantern slides secured an order for several hundred at a good price and made a permanent customer.

The distortion encountered in architectural work occurs when the camera is tilted upwards and the swing back is not straight-

ened. To correct this in the print the top of the enlarging easel is tilted forward instead of backward, as shown by turning our diagram upside down.

These corrections are easily made on the New Model Easel which is made for use with the F. & S. 8 x 10 Revolving Back Enlarging Camera, but which may be used with any enlarging camera.

This easel has a locking device on the upright which allows the easel to be swung into a vertical position or tilted several degrees out of a plumb line to correct the forms of distortion mentioned above.

Once the easel has been set at the proper angle, it may be swung into a horizontal position for placing the paper. When turned back into position for making a print it automatically locks in position at the angle for which it has been adjusted, so that a dozen prints or enlargements may be made from a negative which shows distortion with



FROM AN ARTURA IRIS PRINT

By Campbell Studio
New York



but one adjustment of the easel.

If you have an enlarging camera—and if you haven't, you should add one to your equipment—select a negative in which there is distortion of straight lines and see how easy it is to correct it in a print. If your easel is not adjustable, have your dealer show you the New Model Easel.

If you do not own an enlarging camera, the Revolving Back Enlarging Camera should interest you because it embodies all the latest features and adjustments for making enlargements conveniently and accurately.

The negative carrier is fitted with nested kits for holding all standard size negatives from 8 x 10 down to $3\frac{1}{4} \times 4\frac{1}{4}$. The spring fingers are securely attached with split rivets and the sides of the kits are beveled to prevent the spring fingers from extending into the opening where they will show in the enlargement.

The negative carrier has a revolving center which permits the negative to be adjusted by a rack and pinion movement operated by a thumb screw on the edge of the carrier. The sliding carrier permits of any horizontal adjustment of the image on the easel—the rising and falling front of the camera allows the image to be raised or lowered and the revolving of the negative in its carrier completes the adjustment and makes it possible to quickly

center the enlargements on the easel.

The focusing adjustment of the camera is operated by a large wooden knob and a binding nut permits it to be securely locked. Any suitable light may be used, the ideal arrangement being secured when the camera is attached to the darkroom partition in which an opening has been cut. This permits the use of a light source outside the darkroom and simplifies the difficulty of excluding extraneous light from the room where the paper is being handled.

THE PRICE

Revolving Back Enlarging Camera, 8 x 10, without lens, including revolving negative carrier, full set of kits and one sheet of opal glass \$30.00

New Model Easel, complete with 20 x 20 glass, and five 20 x 20 masks with 8 x 10, 10 x 12, 11 x 14, 14 x 17 and 16 x 20 openings . . . \$16.00

Prices f. o. b. Rochester, N. Y.



Sell

Eastman Portrait Albums

and you will create
a greater demand
for portraits.

MAKE your Easter Greeting a personal one. Your photograph will add individuality to your message of thoughtfulness and good will.

*Make the
appointment
to-day*



THE PYRO STUDIO

Line cut No. 235. For Newspaper advertising. Price, 50 cents.

THE ONLY CONDITION

We make but one condition in our offer of cuts for the use of photographers.

It is obvious that two photographers in the same town would not care to use the same cut, and we are therefore obliged to limit this offer to one photographer in a town. It will be a case of first come first

served. The first order from a city will be promptly filled. Succeeding orders (if any) will necessarily be turned down and the remittance, of course, will be returned. It is also obvious that we cannot, on account of the cost of the drawings, furnish any large variety of cuts at the nominal prices quoted, and therefore can offer no substitute cut. Get your order in *first*. C. K. CO., LTD.

BULLETIN: THE EASTMAN SCHOOL OF PROFESSIONAL PHOTOGRAPHY FOR 1917



St. Louis, Mo.	March 14, 15, 16
Indianapolis, Ind.	March 20, 21, 22
Chicago, Ill.	March 27, 28, 29
Des Moines, Iowa	April 3, 4, 5
Omaha, Neb.	April 10, 11, 12
Kansas City, Mo.	April 17, 18, 19
Wichita, Kans.	April 24, 25, 26



Half-tone Cut No. 235

Price, 50 cents.

This is the cut suggested on page 16 for an advertising folder. This cut will print well on any good grade of paper such as would be used for a small folder to mail to a selected list of prospective Easter customers. It is not suitable for newspaper advertising.

The New Developer:

KODELON

(Paramidophenol-Hydrochloride)

An economical and highly successful developing agent, used in connection with Hydrochinon, for all developing-out papers.

It bears the Kodak Tested Chemical Seal.

THE PRICE

1 oz. bottle	. . . . .	\$ .90
$\frac{1}{4}$ lb. “	. . . . .	3.25
$\frac{1}{2}$ lb. “	. . . . .	6.25
1 lb. “	. . . . .	12.00

Canadian Kodak Co., Limited,

Toronto, Canada

All Dealers’.

NEW CONTRASTS OF AZO F

For some time we have had Azo F—Glossy—on the market in the Hard contrast, and we are now ready to fill orders for Azo F in the full range of contrasts—Soft, Hard and Hard X. This is Single Weight stock.

The Double Weight of Azo C has always been on a white stock, without the tint of Azo C Single Weight, so that in reality the Double Weight of Azo C is the Double Weight of Azo F, but we shall not at this time rename the Double Weight, as should in strictness be done.

Regular Azo prices apply.

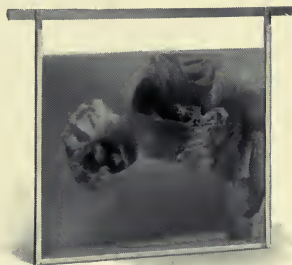
Canadian Kodak Co., Limited,

Toronto, Canada.

All Dealers'.

Core Plate Developing Racks

Are an exceptional convenience to the photographer who uses the darkroom method of tank development. Scratches and finger marks are eliminated, as the plates remain in the rack during developing, fixing, washing and drying. The racks are made of a metal that will not corrode, are convenient to handle and may be used in any tank of proper dimensions. These racks are not suitable for film.



THE PRICE, EACH

4¼ x 6½	\$.50	8 x 10	\$.60
5 x 7 . . . . .	.50	10 x 12	1.10
6½ x 8½ . . . . .	.60	11 x 14	1.60



Eastman Film Developing Holder

For tank development of Eastman Portrait Film.

The holder is made of brass wire, heavily nicked. The film is held at each of the four corners by metal clips attached to the frame, the top bar rests in notches on the edge of the tank and a curved hook permits the film to be suspended while drying.

THE PRICE, EACH

5 x 7	\$.40
6½ x 8½ . . . . .	.50
8 x 10 . . . . .	.50

EASTMAN KODAK COMPANY,

ROCHESTER, N. Y.

All Dealers'.

WANTED

DISCARDED NEGATIVES

We purchase discarded negatives of standard sizes from $4\frac{3}{4} \times 6\frac{1}{2}$ to 20×24 , providing same are in good condition and are carefully packed in accordance with our instructions.

We will pay all the freight on shipments of 100 lbs. or more, except from localities where the freight rate exceeds \$1.00 per 100 lbs., in which case the shipper will be required to pay the excess.

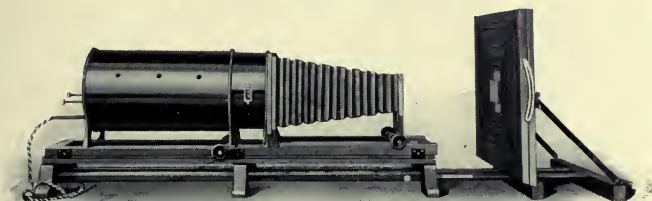
Before making any shipment please secure these instructions, prices and further particulars, which will be furnished on application.

Canadian Kodak Co., Limited,

Toronto, Canada.

Department S.

Don't overlook the big profits of the enlarging business.



We have increased the efficiency of the

EASTMAN ENLARGING OUTFIT

by equipping it with a lamp giving double the volume of light of that formerly used.

Mazda Nitrogen Lamp, 500 Watt—lamp and reflector adjusting screws outside of lamp-house—camera and lamp-house on roller bearings and fitted with quick acting lock nuts—10-inch condensers affording perfect illumination of 5 x 7 negatives—revolving adjustable negative carrier—drop front and hinged back easel and full set of kits to 20 inches—these are a few of the features of the Eastman Enlarging Outfit.

THE PRICE

Eastman Enlarging Outfit, complete with lamp,	
but without lens	\$100.00
Planatograph Symmetrical Lens, 8-inch focus,	12.00

EASTMAN KODAK COMPANY,

All Dealers'.

ROCHESTER, N. Y.

TOZOL

The Complete Developer

Requires the addition of no developing agent. It's right just as it is, and is prepared exactly as it was before the war.

The correct developer for Artura, Azo and Velox.

Note the Reduced Price

1 oz. bottle	\$ 1.10
¼ lb. bottle	4.00
½ lb. bottle	7.75
1 lb. bottle	15.00

Canadian Kodak Co., Limited,

Toronto, Canada.

At your dealers'.

THE EASTMAN FOCUSING CAP

For Enlarging Cameras

is designed to aid in composing the image properly. Consists of a block with an opening in the centre to admit the lens barrel, the same being adjustable to different sizes.

The front edge of the block contains a slide with two apertures, one of which is covered with ruby glass as a safeguard when the paper is being placed, the other aperture being uncovered.

After composing the image on the paper by the *safelight* coming through the ruby glass, make the exposure by sliding the uncovered aperture before the lens.

THE PRICE

No. 1—For lens barrels of $1\frac{1}{2}$ to $2\frac{1}{4}$ inches diameter \$.75

No. 2—For lens barrels of $2\frac{1}{4}$ to 3 inches diameter 1.00

No. 3—For lens barrels of 3 to $3\frac{7}{8}$ inches diameter 1.50

Canadian Kodak Co., Limited,

Toronto, Canada.

All Dealers'.



FROM AN ARTURA IRIS PRINT

MR. H. MISHKIN



STUDIO LIGHT

— INCORPORATING —

THE ARISTO EAGLE .. THE ARTURA BULLETIN

ESTABLISHED 1901

ESTABLISHED 1906

VOL. 9

APRIL 1917

No. 2

MORE BUSINESS FOR YOU

The January meeting of the Philadelphia Professional Photographers was enlivened by an address on enlarging by I. Buxbaum, of Brooklyn. The meeting was held at the studio of Chas. Luedecke, and previous to the meeting the members gathered at the Imperial Restaurant for dinner. The Philadelphia photographers are endeavoring to find a worthy successor for the old family album.—*Abel's Photographic Weekly*, issue of Feb. 3, '17.

The above is just another proof of the truth of the old adage: "Necessity is the mother of invention."

The worthy successor to the old family album is here. It will sell, and it will invite people to have their pictures taken.

And that means more business for you.

Whether you sell these albums or whether the dealer in photographic goods sell them they are going to make more business for you.

For years the public as well as photographers have realized the need of an album. When people know about this album and that it will accommodate 87% of all the sizes of pictures now made they will buy it gladly.

Spread the news of the Eastman Portrait Album, and sell pictures to fill it.

The more albums sold—the more business for you.



THE FOLMER & SCHWING FINGER-PRINT CAMERA

The Folmer & Schwing Division of the Eastman Kodak Company manufacture a great variety of photographic instruments used for special scientific work and of little or no interest to the professional photographer. But occasionally such an instrument may have such a wide range of adaptability that, while primarily intended for a very special

purpose, it may also be used by the professional photographer to good advantage.

This we think is the case with the F. & S. Finger-Print Camera, which will, without doubt, become a part of the equipment of many professional photographers. It will be used for photographing finger prints, but a number of other uses will be found to come within its range of adaptability.

The finger-print system of identification is in common use and has been found to be a very accurate means of identifying criminals. Most Police Departments keep a finger-print record for identification, and such records are beginning to prove extremely valuable. The Army and Navy also use it as a means of identifying deserters, and the possible application of the system



Finger Print Camera Photograph, exact size



FROM AN ARTURA IRIS PRINT

*By H. Mishkin
New York*



is drawing the attention of various commercial and educational organizations.

Identification by finger prints is based on the practically imperishable and unchangeable design of the ridge formation on the tips of the thumb and fingers, and the fact that each design possesses characteristics which cannot be duplicated.

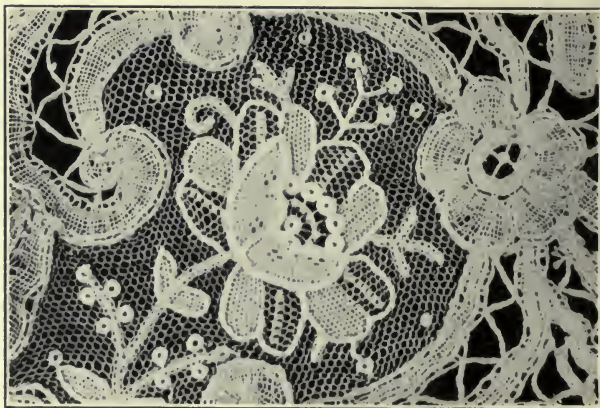
If the house burglar or safe blower has been careless enough to leave the print of a finger about his work it can readily be photographed with the F. & S. Finger-Print Camera, and if a corresponding finger print is filed among the police records; it is a simple matter to find it and know the man to look for, also to confront him with the evidence of his guilt.

The difficulty of securing good

photographs of finger prints has made a special form of camera desirable for this purpose, and since many of the smaller cities do not have a special police photographer the local photographer, may find it to his advantage to become an expert finger print photographer.

The small size of the camera makes it especially convenient to use in confined locations where the ordinary camera and tripod would be useless and artificial illumination of the subject would be difficult.

Aside from its use in criminal investigation the camera may be used for quickly obtaining records of signatures on checks, receipts, passes or legal papers and for photographing details of patterns, designs of materials, trade marks, labels or bits of any



Made with Finger Print Camera, exact size



FROM AN ARTURA IRIS PRINT

*By H. Mishkin
New York*



printed or written matter not larger than the front opening of the camera, the reproduction it makes being actual size.

As will be seen by our illustration, the camera is so constructed that the front may be pressed firmly against the object on which the finger print has been made, the illumination being furnished by four miniature electric lamps directly inside the front but not in line with the lens.

The lever that opens the shutter, automatically switches on the lights, and as the exposure is completed, switches them off again, but they may be operated independently for locating the object or properly placing the camera over it, by pressing a small button. The lamps are operated by batteries contained within the camera and either lamps or batteries may be renewed at little expense.

The lens is the *f*.6.3 Kodak Anastigmat, which is unalterably fixed in the camera at a point that renders a full sized image of the finger print or other object with extreme definition. The actual size of the reproduction is $2\frac{1}{8} \times 3\frac{1}{8}$ and the film, film pack or plate used is $2\frac{1}{4} \times 3\frac{1}{4}$. The size of the camera is $11\frac{3}{4} \times 6 \times 6$ and the weight with batteries is 5 lbs. 8 ounces.

The price of the F. & S. Finger-Print Camera complete with lens, shutter, two batteries, ten lamps and one double plate

holder, $2\frac{1}{4} \times 3\frac{1}{4}$, is \$30.00. An illustrated booklet giving a full description and the method of working the Finger-Print Camera will be mailed, on request, by the Folmer & Schwing Division, Rochester, N. Y.



OUR ILLUSTRATIONS

Mr. H. Mishkin, the subject of this sketch, was born in Russia and landed in this country in 1884, a boy of thirteen years with the great New World before him. Its opportunities were unlimited, but what it held in store for him would be determined entirely by his own efforts.

Young Mishkin aspired to be a photographer and did not hesitate to accept a position as errand boy which paid him \$1.00 a week. He was a good errand boy and a better student of retouching, and in just eighteen weeks had secured a position in another studio as proof retoucher. This led to a still better position as assistant retoucher and spotter and finally to a full fledged retoucher's position with Roseti on Fifth Avenue.

The climb from errand boy to retoucher was fairly fast and the progress made was encouraging, but it's a long step from a position as retoucher to the ownership of a Fifth Avenue studio. Mr. Mishkin worked for eleven years as a retoucher and when



FROM AN ARTURA IRIS PRINT

By H. Mishkin
New York



Roseti retired, opened a small studio for himself in Port Chester, N. Y.

After five years experience in business for himself, he sold his studio at a fair profit and ventured to open a New York studio in the block on Fifth Avenue now occupied by Lord & Taylor. The beginning was very much of a struggle, but in three or four years results were more encouraging.

The real success of the studio may be said to have come with the opening of the Hammerstein Opera House on 34th Street. Mr. Mishkin was appointed the official photographer and his beautiful pictures of the opera stars soon made his name and his studio popular.

When the Metropolitan Opera Company took over the Hammerstein interests, Mr. Mishkin became their official photographer and has held this business for the last eight years. It has been profitable business and it has been good advertising.

Mr. Mishkin is a strong advocate of "bread and butter" photography, and with a clean cut class of work, such as we show in our illustrations, has built up a very successful business from a patronage of the business and professional as well as the wealthy social set of New York.

Mr. Mishkin operates a studio in Brooklyn as well as in New York, but personally supervises

the work of his Fifth Avenue studio, making all his sittings and attending to the details of the business. Our illustrations are from Artura prints, this being the paper used exclusively for the best work of this studio.



FILTER FACTORS AND ORTHOCHROMATIC PLATES

Color filters used with orthochromatic or panchromatic plates necessarily increase the exposure that must be given, because the filters cut out a portion of the light to which the plates are most sensitive. It is not possible to make a plate that is not much more sensitive to violet and blue than to the other colors of the spectrum and ordinary plates are not appreciably sensitive to any other colors than violet and blue.

Orthochromatic plates, however, are sensitive to yellows and greens, but they are so much more sensitive to violets and blues that filters must be used to cut out some of these rays of light, otherwise the plate would be fully exposed before the light from yellow or green objects could be recorded, and the value of the plate's color sensitiveness would be lost.

The amount of light the filter absorbs or cuts out determines the additional amount of expo-



FROM AN ARTURA IRIS PRINT

*By H. Mishkin
New York*



sure that must be given when the filter is used. Thus, if the proper exposure without a filter is one second and the filter cuts out three-fourths of the effective light the exposure with the filter must be four seconds. This would be known as a four-times filter or a filter having a factor of 4. If the filter gave greater correction by cutting out nine-tenths of the effective light, the filter would increase exposure ten times and would have a factor of 10.

Filter factors are misleading unless the basis for determining the factors is known. A filter that is recommended for securing cloud effects may have a low factor, because it is based on sky rather than foreground exposures. Such factors must be doubled or trebled to give proper results when detail in the foreground of landscapes is desired.

The factors for Wratten Filters are based on shadow detail and may seem high, but in every case where cloud effects are desired in preference to detail in the foreground of the subject, the K filter factors of 3 or 15 may be reduced to 1 or 5 and the best results secured.

It must also be understood that a Wratten Filter, say the K 2, when used with ordinary orthochromatic plates, has a factor of 15 and gives five times as much correction as the K 1 filter with a factor of 3, because it cuts out five times as much of the

excess of blue light and is five times as efficient in recording the yellows and greens to which the orthochromatic plate is sensitive.

It is not possible for any filter, *giving the same amount of correction as a Wratten Filter*, to be used with less exposure and produce the same results on the same plate or film. It is possible, however, for a filter to be darker and require more exposure than a Wratten Filter without giving more correction. In such cases the filter is not of the correct color to absorb the maximum amount of blue light. The color correction a filter gives is entirely a matter of its correctness of color and not its darkness of color.

To make this point plain, it may be cited as an example, that some of the so-called ruby glass is not safe in color for developing lights because it is not pure in color and transmits a considerable amount of blue light, even though it is darker than other ruby glass that is much safer to use.

Filter factors also vary with the color sensitiveness of different plate emulsions. This is entirely a matter of the quality of the plate emulsion, as the filter does not change. With Wratten Panchromatic Plates the K 2 filter has a factor of 3, and the K 1 filter has a factor of $1\frac{1}{2}$. These factors are very low considering the fact that they are based on full exposure for detail



FROM AN ARTURA IRIS PRINT

*By H. Mishkin
New York*



in shadows, but this is due to the fact that these plates are extremely sensitive to other colors than blue and violet, and blue and violet are the only colors which the K1 and K2 filters retard.

The K3 filter is not recommended for use with orthochromatic plates because it is especially made to fit the wider color sensitive range of the panchromatic. It may be used with the orthochromatic plates, but does not materially improve the results that may be secured with the K2 filter, which requires much less exposure.

It is well to remember in using orthochromatic plates that a filter that will give the best rendering of yellows and greens that can be secured must necessarily have a factor of about 15 for shadow detail, but that this factor may be reduced to 5 when shadow detail may be sacrificed for clouds or sky. This amounts to the same thing as a shorter exposure for such subjects.

It is also well to remember that factors of from 3 to 5 recommended for filters are either based on sky and clouds, and must be increased to 10 or 15 for shadow detail to avoid underexposure, or the filters with such factors are not of a color that will give the best color rendering that can be secured on a good orthochromatic plate.



A "BIG PHOTOGRAPH" STUNT

There is practically no limit to the photographic stunts the commercial photographer may be called upon to perform, and as it is often up to him to suggest novel uses for photographs, the Giant Newspaper produced by Brown & Rehbaum of Milwaukee, and the method of making it may be of interest to our readers.

An advertising show was to be held in Milwaukee recently and the Milwaukee *Journal* called upon Brown & Rehbaum to make a giant newspaper that would fill the entire background of their booth. Any one having even a slight knowledge of the newspaper business knows that such a piece of work was practically impossible for the printers, so it was put up to the commercial photographer, who is so often called upon to "make good" when other means fail.

A standard size newspaper was submitted for copy, from which 8 x 10 negatives were made of the two pages. As the newspaper would not be satisfied with a patched-up job it was necessary to use the largest Bromide paper made and make four enlargements, each 40 inches wide by 108 inches long, making two pages each 6 feet 8 inches wide by 9 feet high.

Two trays were necessary and



The Big Prints Mounted



The Finished Display



FROM AN ARTURA IRIS PRINT

*By H. Mishkin
New York*





FROM AN ARTURA IRIS PRINT

*By H. Mishkin
New York*



these were made from one-inch lumber and were 48 inches wide and 10 feet long. They were made water-proof and cost, when finished, \$18.00. Two stretcher frames 80 x 108 inches, were made of dry kiln lumber and these were thoroughly braced and reinforced with angle irons, and then covered with a good grade of linen. The lumber and materials to make the frames cost \$25.00 and the linen to cover them, \$8.00.

These stretchers were then used in the enlarging room as easels for focusing. When the exact focus was secured and correct exposure determined by making several test strips, the two big sheets of paper, Eastman Standard B. Bromide, Double Weight, each 40 x 108 inches, were fastened in place and matched in the center. A 12-inch lens was used and the light was furnished by a Cooper Hewitt "M" shaped tube. The exposure given was 55 minutes.

Each strip of paper was developed separately in the large trays. It required 700 ounces of developer for the four long strips, making the two pages. It also required the work of three men for twelve hours to get the prints into the final wash water.

The prints were placed face down on a large strip of oil cloth for mounting and the paste was applied with a paper hanger's paste brush. The prints were

carefully mounted on the stretchers and set up to dry and were finally ready for placing in the exhibit.

Our two illustrations show a detail and a general view of the finished work. So far as is known, this is the largest facsimile of a newspaper ever shown and it attracted an unusual amount of interest at the advertising show.

It was good advertising for the photographer as well as the newspaper, and may suggest some similar stunt to other wide-awake photographers.



PHOTOGRAPHING STAINED GLASS WINDOWS

The problem in photographing stained glass windows is a problem of color contrast, the colors ranging from clear whites to the brightest and deepest reds, blues and greens, to say nothing of the delicate tints and shadings of these colors.

The windows must be photographed by transmitted light, and a true rendering and even color balance can only be secured by the use of a panchromatic plate and a color filter.

Ordinary objects require only a correct balance of light and shade, but a stained glass window is made up of a great many pieces of glass of different colors



Wratten Panchromatic Plate, G Filter

By A. B. Freitag

which act as filters and an ordinary plate would be useless.

We are indebted to Mr. A. B. Freitag, photographer for the Emil Frei Art Glass Company of St. Louis, for the example of window shown.

Mr. Freitag uses Wratten Panchromatic plates for all of his work and is allowed time for only one exposure of each window. The light surrounding the window is stopped out, the plates are always fully timed and developed in a tank with the developer recommended by the manufacturer.

With an ordinary plate that is not color-sensitive the blues in these windows would photograph too light, the yellows too dark and the reds, greens and browns would practically photograph as black, the results being entirely useless for conveying an idea of the actual appearance of the window.

The example shown is from the regular run of Mr. Freitag's work and shows only one of the many uses for Wratten plates and filters.



Use a Wratten K2 Filter and orthochromatic plate and reflections from polished surfaces will be materially reduced.

WHAT BACKGROUND?

It is interesting to know the influences that have helped to decide the character of a man's work, especially when such a man is acknowledged to be a successful photographer.

There are many things that have a bearing on the success of the photographer and the ideas of successful men are sometimes at wide variance, but they are none the less interesting and are often of value to others.

The photographer we have in mind, Mr. William Crooke, of Edinburgh, has made a lifelong study of the work of the old masters of painting, Rembrandt, Velasquez, etc., and his work has undoubtedly been influenced by the work of these artists, just as their work was often influenced by the earlier schools of painting.

Mr. Crooke recently stated that as a consequence of such study he had little use for the silhouetted figure against a white background. He contends that it is a treatment which may only be adopted with success when the outlines of the face and figure are really good. And as it is seldom the case that there are not indifferent lines in the subject that require subduing and blending, he finds the medium or dark ground most suitable for photographic work.

In line with Mr. Crooke's ar-



FROM AN ARTURA IRIS PRINT

*By H. Mishkin
New York*



gument, it is interesting to note that a number of our own professionals find their customers are beginning to tire of white-background work and frequently ask for grey or dark grounds, just as they have asked for grey or black and white prints in preference to sepias.

Aside from the argument that the darker ground suppresses bad lines, which cannot be denied, and the fact that these lines cannot be corrected in a photograph as in a painting, there are other decided disadvantages in photographs with white grounds.

Not many years ago it was the custom to vignette practically all of the head and shoulder portraits that were made. The prints had a hard, glossy surface and were readily kept clean by dusting them, along with the parlor furniture. But photographs are different now-a-days.

The white background of the ordinary matt surfaced print that has stood on the mantle since Christmas, is not likely to be white after it has been dusted a few times. And in such a condition a photograph is hardly a good advertisement for its maker. Most white-ground prints are worked up a bit by the artist before they are delivered and this makes them difficult to clean without removing such work. Look over your sample prints that have been handled and the ones with the white grounds will

most likely be soiled, even if they have had good care. So from this point of view the matt-surface, white-ground print is hardly satisfactory, except for framing under glass.

Mr. Crooke's contention, however, is of most importance, for the greatest difficulty in photographic composition is the handling of disturbing or unpleasing lines. And if these may to some extent be blended into the background, the photographer's task is made much more simple than is the case when they are accentuated by a contrasting background of white.

It may be considered good advice to drift away from white grounds for a long enough time to see if the effects on grey or dark grounds are not more pleasing and better suited to the average subject. And if results warrant discarding white-ground effects you will not likely find yourself voluntarily drifting back to this style of work.



Halation, encountered in home portraiture, is reduced to a minimum by the use of

**EASTMAN
PORTRAIT FILM**

WE photograph men as men are. It's a business matter and there is no fuss or bother.

Your family, friends and business associates want your portrait.

*Make an
appointment
to-day*



THE PYRO STUDIO

Line cut No. 236. For Newspaper advertising. Price, 50 cents.

THE ONLY CONDITION

We make but one condition in our offer of cuts for the use of photographers.

It is obvious that two photographers in the same town would not care to use the same cut, and we are therefore obliged to limit this offer to one photographer in a town. It will be a case of first come first

served. The first order from a city will be promptly filled. Succeeding orders (if any) will necessarily be turned down and the remittance, of course, will be returned. It is also obvious that we cannot, on account of the cost of the drawings, furnish any large variety of cuts at the nominal prices quoted, and therefore can offer no substitute cut. Get your order in *first*. C. K. CO., Ltd.

BULLETIN: THE EASTMAN SCHOOL OF PROFESSIONAL PHOTOGRAPHY FOR 1917



Kansas City, Mo.	April 17, 18, 19
Wichita, Kans.	April 24, 25, 26
Springfield, Mo.	May 1, 2, 3
Dallas, Texas	May 8, 9, 10
Oklahoma City, Okla.	May 15, 16, 17
Denver, Colo.	May 22, 23, 24
Salt Lake City, Utah	May 29, 30, 31
Los Angeles, Cal.	June 5, 6, 7



AN exacting test of all chemicals used in the manufacture of sensitive materials is one of the most important precautions taken to make our products of a uniformly high quality.

That the same certainty and uniformity of quality may follow in the results you secure with these materials, the chemicals we offer for your use are given the same exacting laboratory tests. They are stamped with our mark of approval only when found to be of the strength and quality demanded by our manufacturing standards.



Look for our stamp of approval on every container.

Canadian Kodak Co., Limited,

Toronto, Canada.

All Dealers'.

TOZOL

The Complete Developer

Requires the addition of no developing agent. It's right just as it is, and is prepared exactly as it was before the war.

The correct developer for Artura, Azo and Velox.

Note the Reduced Price

1 oz. bottle	\$ 1.10
¼ lb. bottle	4.00
½ lb. bottle	7 75
1 lb. bottle	15.00

Canadian Kodak Co., Limited,

Toronto, Canada

At your dealers'.

The New Developer:

KODELON

(Paramidophenol-Hydrochloride)

An economical and highly successful developing agent, used in connection with Hydrochinon, for all developing-out papers.

It bears the Kodak Tested Chemical Seal.

THE PRICE

1 oz. bottle	. . . . .	\$ .90
$\frac{1}{4}$ lb. “	. . . . .	3.25
$\frac{1}{2}$ lb. “	. . . . .	6.25
1 lb. “	. . . . .	12.00

Canadian Kodak Co., Limited,

Toronto, Canada

All Dealers’.

NEW CONTRASTS OF AZO F

For some time we have had Azo F—Glossy—on the market in the Hard contrast, and we are now ready to fill orders for Azo F in the full range of contrasts—Soft, Hard and Hard X. This is Single Weight stock.

The Double Weight of Azo C has always been on a white stock, without the tint of Azo C Single Weight, so that in reality the Double Weight of Azo C is the Double Weight of Azo F, but we shall not at this time rename the Double Weight, as should in strictness be done.

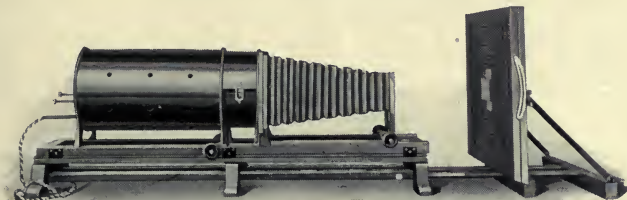
Regular Azo prices apply.

Canadian Kodak Co., Limited,

Toronto, Canada.

All Dealers'.

Don't overlook the big profits of the enlarging business.



We have increased the efficiency of the
EASTMAN
ENLARGING OUTFIT

by equipping it with a lamp giving double the volume of light of that formerly used.

Mazda Nitrogen Lamp, 500 Watt—lamp and reflector adjusting screws outside of lamp-house—camera and lamp-house on roller bearings and fitted with quick acting lock nuts—10-inch condensers affording perfect illumination of 5 x 7 negatives—revolving adjustable negative carrier—drop front and hinged back easel and full set of kits to 20 inches—these are a few of the features of the Eastman Enlarging Outfit.

THE PRICE

Eastman Enlarging Outfit, complete with lamp,	
but without lens	\$100.00
Planatograph Symmetrical Lens, 8-inch focus,	12.00

EASTMAN KODAK COMPANY,

ROCHESTER, N. Y.

All Dealers'.

WANTED

DISCARDED NEGATIVES

We purchase discarded negatives of standard sizes from $4\frac{3}{4} \times 6\frac{1}{2}$ to 20×24 , providing same are in good condition and are carefully packed in accordance with our instructions.

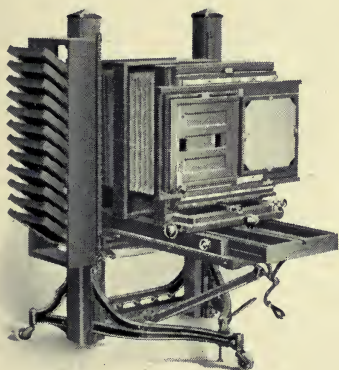
We will pay all the freight on shipments of 100 lbs. or more, except from localities where the freight rate exceeds \$1.00 per 100 lbs., in which case the shipper will be required to pay the excess.

Before making any shipment please secure these instructions, prices and further particulars, which will be furnished on application.

Canadian Kodak Co., Limited,
Toronto, Canada.

Department S.

Century Studio Outfits



WHEN you place your customer before a Century Studio Outfit, he instinctively feels a sense of confidence in you and your work that will help when the proofs are shown.

Obsolete apparatus in your light room produces the opposite effect.

A new Century Studio Outfit will help to better sales.

Write your stock house for particulars.

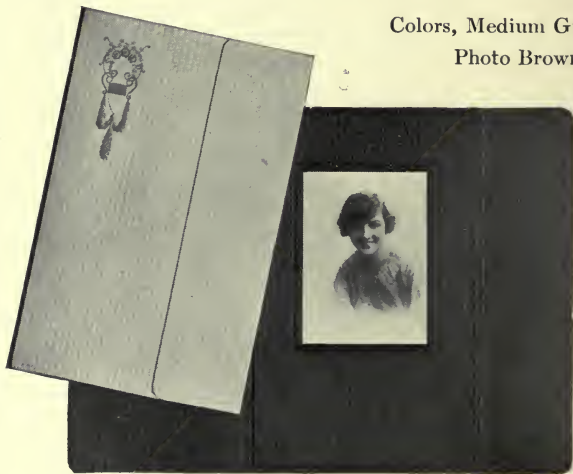
Century Camera Division

Eastman Kodak Co.,
ROCHESTER, N. Y.

Style Sonata

Slip-In Style for 3 x 4 and 4 x 6 prints—Oval and Square.

Colors, Medium Grey and
Photo Brown.



The Sonata—We want to draw your attention to the outside size of folder for 3 x 4 prints which is 5 x 8 outside. It presents the popular 3 x 4 from a different point of view, and puts this size in a new class.

The Cover and Insert are surfaced in our drawn linen pattern. Insert is tinted around embossed opening and border in suitable shades. Cover is ornamented with a double tinted and embossed trophy and wreath design.

An exceptionally attractive folder which you will find a tonic for better prices for 3 x 4 and 4 x 6 prints. Finish and design all look new. Write for sample to-day.

Sample of One Size Mailed Free.

MANUFACTURED BY

Canadian Card Co., Toronto, Canada.



Kodak Dry Mounting Press

The dry mounting process is the most modern, convenient and efficient method of mounting prints. And as the print you deliver is an advertisement for or against you, its condition after it leaves your hands is important if it is to be a good advertisement.

Dry mounting does not cockle the thinnest mount, holds the print perfectly flat and permits you to deliver prints immediately after they are mounted.

A piece of Dry Mounting Tissue is tacked to the back of the print, the print and mount are slipped into the press and the heat and pressure does the mounting. Prints much larger than the plate of the press may be mounted by giving several impressions. The 5 x 7 and 11 x 14 presses are gas heated. The 11 x 14 press is also furnished electrically heated.

THE PRICE

Kodak Dry Mounting Press, 5 x 7 gas heated . .	\$15.00
Kodak Dry Mounting Press, 11 x 14 gas heated . .	50.00
Kodak Dry Mounting Press, 11 x 14 electrically heated	70.00

Canadian Kodak Co., Limited,

All Dealers'.

Toronto, Canada.



ARTURA IRIS PRINT, FROM EASTMAN PORTRAIT FILM NEGATIVE

*Middle Atlantic States
Convention Demonstration
By W. B. Poynter, Cincinnati, Ohio*



STUDIO LIGHT

— INCORPORATING —

THE ARISTO EAGLE... THE ARTURA BULLETIN

ESTABLISHED 1901

ESTABLISHED 1906

VOL. 9

MAY 1917

No. 3

BETTER BUSINESS FOR YOU

When the great European war broke out and England began sending her young men to the help of France there was fear that the English photographers would have to close their shops. The young men employed in studios enlisted and business seemed to be doomed.

But soon it picked up and it was necessary to employ forces of girls to take the place of the men.

With the establishment of training camps the soldiers demanded photographs of themselves in their new uniforms for the folks at home.

And it was soon learned that there was room in the soldier's kit for pictures of the folks at home.

Instead of going out of business the English photographer found himself with more work than he could handle.

It was necessary to resort to artificial light and night work to keep up with sittings, and we learn from the English magazines of the precautions that were necessary because of military orders to prevent the lights being seen.

When Canada began sending her young men to help the mother country, "Business as Usual" became Canada's slogan, but business was soon better than usual for the photographer.

And so it will be with our photographers. The soldier or sailor in his new uniform will want photographs for the folks at home, and photographers everywhere will get their share of the business.

It takes a long time to train an army and you will find there will be soldiers all over the country. Your business will be better than usual if you make an effort to get the soldier's business.



CENTURY STUDIO OUTFITS ADVANCED

Century professional studio cameras, outfits and apparatus have always been sold at prices consistent with Century quality.

For two or three years, however, one after another, improvements have been added and additional manufacturing expenses incurred until, with the greatly increased cost of material and labor, it has become necessary to make an advance in the price of Century Studio Outfits and some of the sundries of the Century line.

Considering the improvements that have been made in Century studio cameras, the convenience with which they are operated and the quality of workmanship and material which enters into their make-up, the new Century prices are still consistent with quality. Nothing has been slighted in their making or the material of which they are made. In fact, when it has been possible to add an improvement it has been added regardless of its additional cost. And while this policy has made an advance in price necessary, it has maintained the Century standard of quality in studio equipment. At the new prices, Century Cameras still offer the greatest values in quality and convenience that can be built into professional apparatus for the photographer.

THE PRICES

	8 x 10	11 x 14
Century Grand Studio Outfit complete	\$129.00	\$164.00
Century Universal Studio Outfit complete	117.00	154.00
Century Studio Outfit No. 4 complete	69.00	
Century Studio Outfit No. 7 complete	104.00	
Century Studio Outfit No. 8 complete		156.00

Above prices f. o. b. Rochester, N. Y.

Write your dealer for Canadian prices.



PHOTOGRAPHERS ATTENTION

As the President of your National Association I feel it my privilege and duty to call your attention to existing conditions in these United States.

We, the people, through our President and Congress have found it necessary to declare that a state of war exists against the Imperial Government of Germany.

It is not for us to quibble over pros and cons—it is for us to stand by and uphold the actions of our Government in whatever manner we find it possible so to do.

Let us refrain from, and discourage petty criticisms of any actions taken by the men we have vested with the power to act for us, and in whatever way possible let us prove ourselves true and loyal citizens of the commonwealth in which we live.

RYLAND W. PHILLIPS,
President of the P. A. of A.



ARTURA IRIS PRINT, FROM EASTMAN PORTRAIT FILM NEGATIVE

*Middle Atlantic States
Convention Demonstration
By W. B. Poynter, Cincinnati, Ohio*



THE PHOTOGRAPHIC RENDERING OF TONE VALUES

BY C. E. K. MEES

INTRODUCTION

A photographer is concerned with reproducing the tone values of his subject as different degrees of light and shade in the print, each tone in the original being represented by a corresponding tone in the finished print, and it is the purpose of this new series of articles, embodying many of the results obtained in the last few years by the Research Laboratory of the Eastman Kodak Company, to trace the various steps in the photographic process and to explain the factors which affect the photographic rendering obtained. The different articles will deal with the lighting of the subject, the translation of the tone of the subject in the making of the negative, including the effect of exposure and development, the scale of printing papers and the translation of the scale of the negative into the scale of the print, and, finally the accuracy of reproduction itself as shown by a direct comparison of the print with the original subject.

1. THE DISTRIBUTION OF LIGHT AND SHADE IN THE SUBJECT

When a representation of a natural object is made upon a flat surface, the form must be rep-

resented by differences of tone and differences of color. A painter, for instance, uses both differences of tone and color, while a black and white draughtsman confines himself to differences of tone, ignoring color. Except the special branch of color photography, photography deals only with the reproduction of objects in different gradations of light and shade, and in this series of articles we shall not only ignore the question of reproduction in color but we shall also ignore the fact that natural objects have different colors, and shall consider their reproduction as if everything consisted of shades of black and white and gray; that is to say, we shall deal with the different tone gradations of natural objects but shall ignore the fact that they have also differences of color.

The translation of differences of color into monochrome is best dealt with as a separate branch of photography—what is called "orthochromatic" photography or the photography of colored objects—and it is not proposed to take up this subject in the present series of articles.

If we had to make a photograph or a painting of a thing which was all of one tone, we should find it impossible to convey any impression of what tone is unless the photograph included other lighter or darker objects for comparison. A piece of black



ARTURA IRIS PRINT, FROM EASTMAN PORTRAIT FILM NEGATIVE

*Middle Atlantic States
Convention Demonstration
By W. B. Poynter, Cincinnati, Ohio*



velvet placed in bright sunlight is brighter than a sheet of white paper in a dark room, so that it is impossible to speak of the brightness of paper or the blackness of velvet unless we have some standard of comparison by which to measure it. We cannot make a photograph of a sheet of plain white paper which will convey anything to the mind. We get a uniform deposit of gray on our plate, and when we print it the result depends on how much exposure we give in printing. If we give a short exposure, we get a print showing only white paper; if we give more, we get a uniform gray tint; and if we give more still, we get a completely black print, but none of them convey anything to our mind as representing any particular object.

Natural objects are visible not because they reflect light but because they reflect light *in various amounts*. If all objects were of equal brightness they would be invisible. An artist can suggest natural objects by representing them in two tones; that is to say, by a line drawing. In nature, however, there are no outlines and all of its wonderful scenes are shown to us through the medium of an infinite scale of tones, an object only standing out from its background when it differs in tone or color from that of the objects beyond. In order to get a faithful representation of nature, we must get a reproduction,

as accurate as possible, of the whole scale of tones occurring in the scene which we are photographing.

In natural objects these different tone gradations can be produced by differences in the reflecting power. Black ink reflects less light than white paper and so with the same light falling on each there is a difference in brightness by which the ink marks are distinguished from the paper. Even if an object has uniform reflecting power, however, different tone gradations can be produced by differences in the illumination of the object. If we light a plaster cast, for instance, from one side, part of the cast will be in shadow and part in full light, and so although the whole cast has the same reflecting power, yet there will be differences of brightness, the part in shadow being less bright than that on which the light falls.

The brightness of a natural object depends therefore upon the illumination falling upon it and also on its reflecting power. If its reflecting power is 20%, its brightness will be 20% of whatever illumination may fall upon it.

Things differ very much in reflecting power; white chalk reflects about 90% of the light falling upon it, snow about 80%, an ordinary brick wall will reflect perhaps 20%, black printing ink less than 10%, while the blackest



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thing we can get, like black velvet, will reflect only 1% or 2% of the light falling on it. The ratio of the greatest brightness reflected in any scene to the lowest brightness may be referred to as the "scale of contrast" of the scene, so that if we have white chalk reflecting 90% of the light and have to photograph it with black velvet in the picture reflecting only 1% of the light and they are both lighted from the same source, then the scale of contrast will be 90 to 1.

A scale of contrast in which the highest light is only four times as bright as the deepest shadow is considered low, and photographic subjects having this scale would be called very flat. A scale of 10 to 1 is a very soft contrast; a scale of 20 to 1 is a soft contrast; and a subject having a scale of 40 to 1 would be a subject of normal contrast.

Natural subjects like landscapes differ very much in contrast. We have taken some pictures of different landscapes when we carried with us a photometer, an instrument for measuring brightness, with a little standard lamp. We measured the brightness of natural subjects and found that the flattest subjects—scenes at the lake and on the shore—would have contrasts as low as 1 to 5, while the strongest contrasts we get, from the shadow inside a wood to sunlit hills outside over the river gave us a total

difference of brightness of 1 to 250, the sky outside being 250 times as bright as the deepest shadow inside the wood.

In studio work the contrast is governed largely by the character of the lighting. It was, for example, found by actual measurement that the contrast range between a white waist and a black skirt on a sitter, when the lighting was of average quality, was 1 to 40, while the same subject under a softer lighting gave a contrast range reading of 1 to 30. In line lighting the contrast range obviously may be very great indeed.

In general, in home portraiture, it is difficult to keep the contrast range low and at the same time secure lightings pleasing from an artistic standpoint. Measurement showed that typical cases gave a range of 1 to 65 on the sitter. When rather dark room furnishings form the background, the contrast between, say, a sitter's waist near the window and the darkest portion of the background may easily be 1 to 100.

We see then that in regard to brightness photographic subjects differ in two respects: They differ in regard to the total average illumination falling upon them and they differ with regard to the contrast of brightnesses which occur in the subject, which it is the business of the photographic process to translate into the black



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and white of the print. The total brightness is of importance because if the total brightness is low, we shall have to give the light more time to act on the photographic material than if it were high, but nevertheless, whatever the total brightness, if the contrast range is the same, we shall get the same result if we give the correct exposure.

(To be continued.)



THE 1917 KODAK ADVERTISING COMPETITION—\$3,000.00 CASH

Fourteen Prizes, \$100.00 to \$750.00

Each, for the Best Pictures for Illustrating Kodak Advertising.

We have increased the number of prizes in the 1917 Advertising Contest to fourteen so that there will be a greater opportunity for each contestant to win a prize that will repay the effort that may be made.

We rely upon the prize winning pictures in these competitions for most of our advertising illustrations. Our advertising is written around the pictures, but the pictures must be as convincing as our text. In fact, the pictures must be able to stand alone—must get the idea to the reader whether he reads the text or not.

If the picture is more convincing than anything we can say, we devote most of our space to picture—if it tells the whole story of the good times one can enjoy by owning and using a Kodak, we merely add to its suggestion, "Take a Kodak with you" or some similar phrase, and set it to work as an advertisement.

All of the advertisements in the magazines are not carefully read but everyone sees the pictures, so the advertisement with a picture that tells a convincing story has the advantage.

We want selling pictures. And selling pictures are the ones that impress their story on the mind in a flash. There is never any question about the story a real selling picture tells. It must make the thing for sale so desirable that, so far as the desire is concerned, the sale is made.

You may see thousands of pictures made with Kodaks and all of them may tell interesting stories, but never a suggestion be given of the good fun for the one who made the pictures. If there had been a second camera to include the boy or girl with the Kodak, the part it played in the good times would immediately have been apparent and the Kodak would have taken its share of the credit.

This is the important point about advertising illustrations for our use. It's much the same as



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hunting or fishing pictures. Pictures of the game have no special interest except as natural history subjects, but if the hunter is pictured in the act of bringing down the game or is in any way made an active part of the picture, interest immediately centers around the hunter and the picture at once appeals to the sportsman.

The pictures we want need not be made with Kodaks, but Kodaks or Kodak sundries must be used when the picture requires such articles.

The Kodak Advertising Competitions have brought many photographers into this line of work, and some of them have found a profitable market for other pictures than those advertising Kodaks. Our competitions offer an incentive for taking up such work, as the prizes are well worth while.

THE PRIZES

First Prize . . .	\$750.00
Second Prize . . .	500.00
Third Prize . . .	350.00
Fourth Prize . . .	250.00
Fifth Prize . . .	200.00
Sixth Prize . . .	150.00

and eight prizes of \$100.00 each.

The winner of the first prize shall be awarded no other prize, and no contestant shall be awarded more than two prizes. The contest will close November 1st, 1917, at Rochester, N. Y., and October 20th, at Toronto, Can.

Circular giving complete terms

of the competition will be mailed on request or may be had from your dealer.



MORE ALBUMS— MORE BUSINESS

There is a right way and a wrong way to look at the sale of Eastman Portrait Albums. The right way is from the advertiser's point of view, looking beyond the immediate profit and seeing the results that are bound to follow, once the portrait album is again made popular.

Necessity creates demand, and there has been ample need of a means of preserving the great variety of photographs found in the average home. To merely suggest a portrait album means nothing, for long ago the portrait album was outgrown. It fell behind the rapid strides of photography and was soon old-fashioned.

A campaign of education is necessary to convince the public that, at one step, all the objections to the portrait album have been overcome—that a new album, dignified and refined in appearance—convenient, elastic and broad in its adaptability, has been invented to take care of the great variety of sizes and styles of pictures of to-day.

These are the things that must be given wide publicity to make the portrait album again popular



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in the home. Ask your customer what means she has of caring for portraits of family and friends. Then show the new album and explain its good points. You must have it in stock to sell it, so don't depend upon a sample to do the work. Stock it and sell it, and you are creating new business.

Many photographers are poor advertisers because they can see only immediate profit. Hold a dime close enough to your eye and it will hide a dollar a little further away. To say it takes too much time and effort in proportion to your profit—that it really isn't worth while to sell portrait albums, is to look at a good thing the wrong way.

We have in mind a photographer who is so far-seeing, he has planned on giving albums to a number of his best customers this year. He will probably sell many more, for he can see far beyond an immediate profit the cumulative effect upon the photograph business that is sure to follow a return to the use of portrait albums in the home.

It would not be reasonable for all photographers to give albums, even to their best customers, but every one can sell albums, and the more there are sold the greater will be the demand for pictures to fill them.

Every album you sell is a silent salesman for photographs. Every vacant page will call for pictures

of friends or relatives until it is filled, and then a dozen more leaves can be added, bringing the capacity of the album close to one hundred photographs. And it will keep on demanding more portraits until it is completely filled.

If every photographer in every town would make a strong effort to sell as many albums as possible, it would not be long before the portrait business would be given such a healthy stimulus that every photographer would feel its effect in an increased business.

With portrait albums in a good percentage of American homes, and the demand that will be created for portraits of our soldier boys, the photograph business will not suffer any material slump in the next year or so at least.

If you have not seen the Eastman Portrait Album, have your dealer or his traveling man show it to you, and order at once. The album takes 87% of the sizes of portraits now made by photographers, overcoming the only real obstacle there has ever been to a revival of the usefulness and popularity of the home portrait album. The album is bound in black long-grained leather with the word "Portraits" stamped in gold leaf on the cover. Leaves are furnished for 2, 4, 6 and 8 prints from 8 x 10 down, and leaves may be changed about or new leaves added, making pos-



ARTURA IRIS PRINT, FROM EASTMAN PORTRAIT FILM NEGATIVE

*Middle Atlantic States
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sible any arrangement or order of the portraits that may be desired. Your dealer will quote you the prices with full information.



COMPOSITE GROUPS

A clever idea in group arrangement comes to us from the Holmboe Studio, Bismarck, N. D., and we are glad to pass it on to STUDIO LIGHT readers. The novelty of this idea is in the arrangement of the pictures. The group is of the House of Representatives of North Dakota, and each picture indicates the exact position of the Representative's seat on the floor of the chamber. The completed group gives one a perfect diagram of the seating arrangement and adds interest to such a picture.

It is impractical to make anything but a composite group of such a large number of subjects, especially where it is a group of considerable importance and each picture must be as good as can be secured. And from the point of profitable business it is certainly an advantage to make individual sittings. The percentage of individual orders is usually high and the sales of the group pictures will be better because the individual pictures are all good.

We can not think of a better or more clever arrangement than Mr. Holmboe has secured for his

group, and he advises us that it has been the means of securing him this business at three successive legislative sessions.

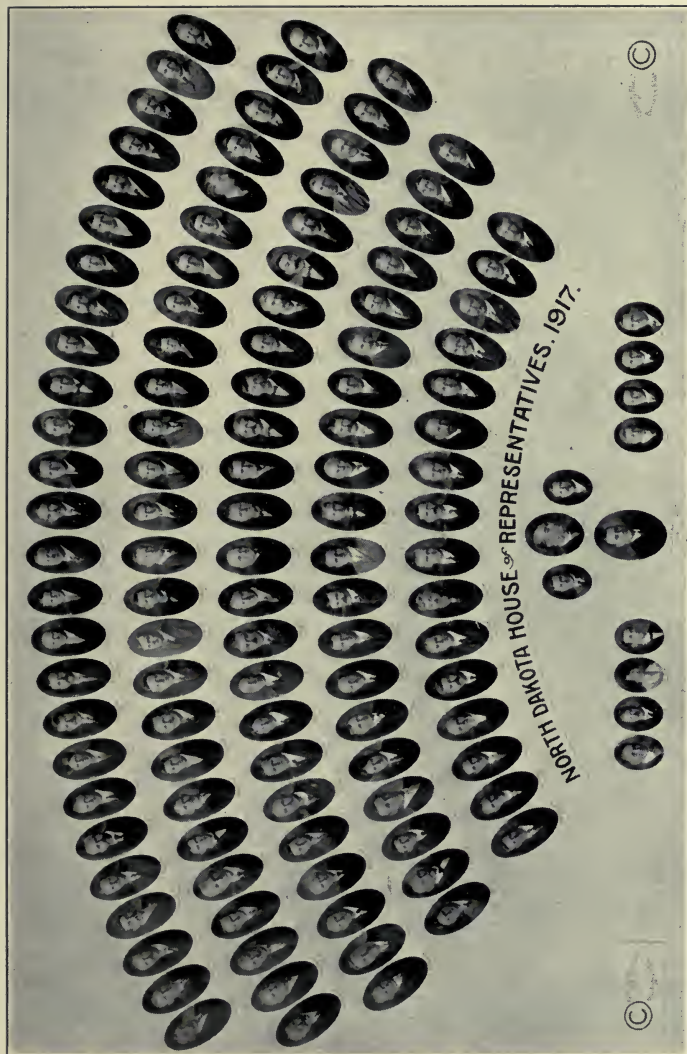
The idea might be used to advantage by photographers in other state capitals and a modification of the idea used for schools, fraternities, etc. We can see how a fore-shortened diagram of a baseball diamond with pictures to indicate the positions of principal players, and the substitutes along the side lines, might make one of a number of interesting athletic groups.

In our illustration it will be seen that the prints are trimmed so that a large enough portion of the white margin is left beneath for the name, this plan doing away with numbering and printing a separate list of names beneath. The prints are mounted on white felt and the finished group copied, the size of the copy in this instance being 9½ x 14 inches.



*For the best color
correction, use*

Wratten Filters



GROUP BY HOLMBOE STUDIO, BISMARCK, N. D.

OUR ILLUSTRATIONS

At the recent Middle-Atlantic States Convention held in Philadelphia, Mr. W. B. Poynter, a young but very successful photographer of Cincinnati, made a remarkable home-portrait demonstration before the convention.

The demonstration was remarkable because it showed the efficiency of Mr. Poynter's methods. Eight exposures were made on Eastman Portrait Film and the following morning eight excellent framed Artura prints from the negatives were hung on the screens.

It was also a remarkable demonstration to those unfamiliar with film quality and results because the negatives were of exceptional quality and every print was worth a good order.

But to Mr. Poynter such results are but incidents of his every day work. He is always certain of film results.

His subjects were children and, considering the fact that this demonstration was made before a convention and not in a home, he handled his subjects exceptionally well, the results showing very little evidence of the self-consciousness one would expect, even in a child, under such circumstances.

The man who uses film is invariably a film booster. His own experience has convinced him that film has made an improve-

ment in his work—that film quality is all and more than has been claimed for it, so he wants others to know about it.

Mr. Poynter is not an exception to this rule. He has made several interesting demonstrations before photographic societies recently, always on Portrait Film, and in no instance has his use of film been prompted by any other incentive than the satisfaction he finds in the quality of film results.

Film will produce plate results—but it will do more, and it is in work beyond the limitations of ordinary sensitive material that film results are seen to the best advantage. Home portrait workers have been quick to see these advantages and, like Mr. Poynter, have grasped this means of bringing portraiture in the home on a level of quality with the best studio work produced.

We are reproducing the entire lot of pictures made in Mr. Poynter's demonstration before the Middle-Atlantic States Convention, such conditions being the most trying we can imagine both for the photographer and the materials used.



*Ask your dealer to show
you the Eastman Por-
trait Album*

BULLETIN: THE EASTMAN SCHOOL OF PROFESSIONAL PHOTOGRAPHY FOR 1917



Oklahoma City, Okla.	May 15, 16, 17
Denver, Colo.	May 22, 23, 24
Salt Lake City, Utah	May 29, 30, 31
Los Angeles, Cal.	June 5, 6, 7
San Francisco, Calif.	June 12, 13, 14
Portland, Ore.	June 19, 20, 21
Seattle, Wash.	June 26, 27, 28

VACATION

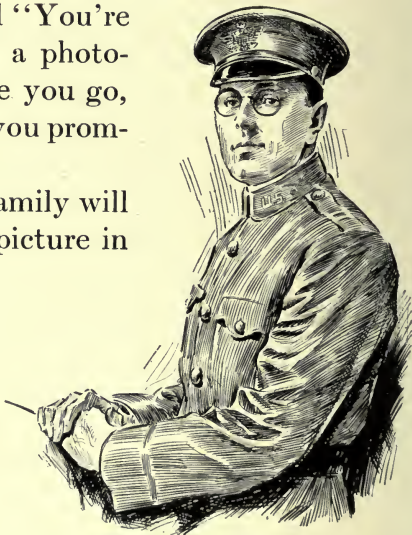


ON the following pages are reproduced advertisements showing what the U. S. photographers are being urged to do. Perhaps some Canadian reader will benefit by these ads, though the difference in uniform bars the cuts.

SOMEONE said "You're going to have a photograph made before you go, aren't you?" and you promised.

You and your family will be proud of that picture in years to come.

*Make the
appointment
to-day*



THE PYRO STUDIO

Line cut No. 237. Price, 50 cents.

SOLDIER BUSINESS

Advertise for the business of the soldier boys. Every man or boy who leaves home to serve his country leaves those behind who are proud of the part he is taking in his country's defence. Nothing will bring them more cheer than a good portrait of that man or boy in uniform.

We have had three original drawings made specially for this advertising and cuts from all three are offered this month. Order these at once and lose no time in getting your advertising for the soldier business under way.

Once the boys are away from home, probably settled down to months of training, there will be

LOYALTY—first to country, then to home.

To cheer those who cannot serve as you serve but whose hearts are with you—your photograph.



THE PYRO STUDIO

Line cut No. 238. Price, 50 cents.

pictures of the home folks to make for the boys, so altogether the photographer should soon be a very busy person.

There is just one precaution to take in advertising for this business and if that precaution is not taken your advertising will do you infinitely greater harm than good. Don't speak of or intimate fatalities. Every mother,

father or wife of a soldier is trying to keep such thoughts out of mind—we are all hoping that such things may be unnecessary, so don't thoughtlessly suggest such an argument as a means of getting business.

It is also well to remember that nothing is too good for these soldier boys. Because their uniforms are all alike and one wants



YOUR friends are proud of you, the cause you serve and the uniform you wear. They want your photograph.

Do it to-day

THE PYRO STUDIO

Line cut No. 239. Price, 50 cents.

post cards doesn't signify that all will want post cards. Your next soldier customer in the uniform of a private may be good for a twenty dollar order, so at least offer the boys the best you have and try to sell them photographs they and the folks at home will prize in the years to come.

We make but one condition in our offer of these cuts. It is obvious that two photographers in the same town would not care to use the same cut. We are obliged to limit this offer to one photographer in a town. It will be a case of first come first served. Get your order in *first*. E. K. CO.

Wratten Filters

Wratten K Filters used with orthochromatic plates enable the photographer to secure the greatest color correction the plates are capable of rendering.

Wratten K and Contrast Filters used with panchromatic plates enable one to secure partial correction, complete correction or over-correction of color values so that colored objects may be photographed lighter, darker or exactly as they appear to the eye.

Orthochromatic Filters

K1—Light yellow for use when short exposures are necessary.

K2—Slightly darker, for the greatest correction on orthochromatic plates.

K3—For absolutely correct rendering on panchromatic plates, but not recommended for other plates.

Contrast Filters

for Panchromatic Plates

G—Strong yellow for rendering yellow objects lighter than they appear—especially suitable for showing grain of oak and yellow woods.

A—Orange-red for mahogany, rosewood, etc.

B—Green for typewriting, rugs, etc.

F—Deep red for dark mahogany, etc.

PRICES OF W. & W. FILTERS

	Gelatine Film Square	B Glass Circles or Squares		Gelatine Film Square	B Glass Circles or Squares
1 $\frac{1}{4}$ in. or less . . .	\$.20	\$1.15	2 $\frac{1}{4}$ in.	\$.50	
1 $\frac{1}{2}$ in. . . . .	.25	1.30	2 $\frac{1}{2}$ in. . . . .	.65	\$2.35
1 $\frac{3}{4}$ in. . . . .	.30	1.50	3 in. . . . .	.90	3.00
2 in. . . . .	.40	1.65	3 $\frac{1}{2}$ in.		4.50
2 $\frac{1}{8}$ in.		1.80	4 in.		5.40

Canadian Kodak Co., Limited,

Toronto, Canada.

All Dealers'.

AN exacting test of all chemicals used in the manufacture of sensitive materials is one of the most important precautions taken to make our products of a uniformly high quality.

That the same certainty and uniformity of quality may follow in the results you secure with these materials, the chemicals we offer for your use are given the same exacting laboratory tests. They are stamped with our mark of approval only when found to be of the strength and quality demanded by our manufacturing standards.



*Look for our stamp of approval on
every container.*

Canadian Kodak Co., Limited,

Toronto, Canada.

All Dealers'.

Eastman Film Developing Holder No. 2

This is an improved horizontal shape holder that may be used in the same tanks used for Core Plate Developing Racks. The top bar rests on the edges of tank, four clips securely hold the film in place and a hook permits the holder to be suspended while film is drying.



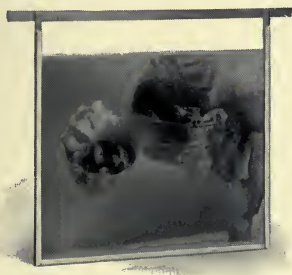
THE PRICE

5 x 7	\$.40	8 x 10	\$.50
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EASTMAN FILM LOADING FIXTURE

5 x 7	\$1.25	8 x 10	\$1.50
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Core Plate Developing Racks



For holding plates during developing, fixing, washing and drying. They permit the plates to be handled conveniently reducing the danger of scratches or finger marks. The racks are made of a metal that will not corrode and may be used in any tank of proper dimensions.

THE PRICE, EACH

4½ x 6½	\$.60	8 x 10	\$.75
5 x 7 . . . . .	.60	10 x 12	1.40
6½ x 8½ . . . . .	.75	11 x 14	1.75

EASTMAN KODAK COMPANY,

All Dealers'.

ROCHESTER, N. Y.

The New Developer:

KODELON

(Paramidophenol-Hydrochloride)

An economical and highly successful developing agent, used in connection with Hydrochinon, for all developing-out papers.

It bears the Kodak Tested Chemical Seal.

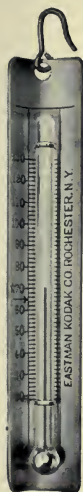
THE PRICE

1 oz. bottle	. . . . .	\$ .90
$\frac{1}{4}$ lb.	“	3.25
$\frac{1}{2}$ lb.	“	6.25
1 lb.	“	12.00

Canadian Kodak Co., Limited,

Toronto, Canada

All Dealers'.



You can buy uniform materials, but you must give them a fair chance if you expect uniform results.

Temperature is important.

THE EASTMAN THERMOMETER

Accurate—convenient—indispensable in tank development where time and temperature are the governing factors. Made with curved back, easily read degree marks and with hook to suspend it in tank.

Eastman Thermometer \$.65

THE EASTMAN TIMER

makes it simple to time exposures with accuracy and uniformity, and these are necessary for uniformity of print results. The hand splits seconds—the large dial is plainly marked and easily read—the timer runs thirty hours.



The Eastman Timer, \$2.50

CANADIAN KODAK CO., LIMITED,
All Dealers'. Toronto, Canada

WANTED

DISCARDED NEGATIVES

We purchase discarded negatives of standard sizes from $4\frac{3}{4} \times 6\frac{1}{2}$ to 20×24 , providing same are in good condition and are carefully packed in accordance with our instructions.

We will pay all the freight on shipments of 100 lbs. or more, except from localities where the freight rate exceeds \$1.00 per 100 lbs., in which case the shipper will be required to pay the excess.

Before making any shipment please secure these instructions, prices and further particulars, which will be furnished on application.

Canadian Kodak Co., Limited,

Toronto, Canada.

Department S.

TOZOL

The Complete Developer

Requires the addition of no developing agent. It's right just as it is, and is prepared exactly as it was before the war.

The correct developer for Artura, Azo and Velox.

Note the Reduced Price

1 oz. bottle	\$ 1.10
¼ lb. bottle	4.00
½ lb. bottle	7.75
1 lb. bottle	15.00

Canadian Kodak Co., Limited,

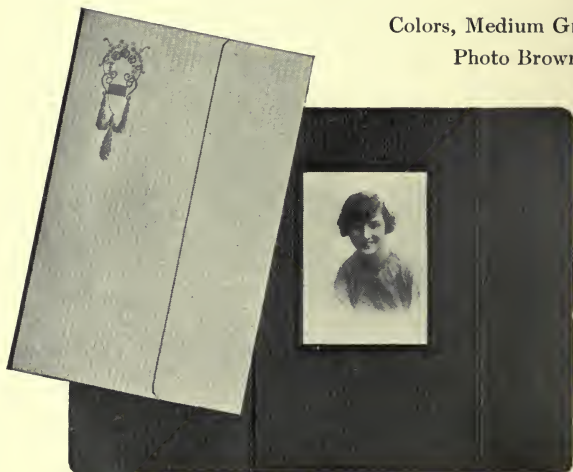
Toronto, Canada

At your dealers'.

Style Sonata

Slip-In Style for 3 x 4 and 4 x 6 prints—Oval and Square.

Colors, Medium Grey and
Photo Brown.



The Sonata—We want to draw your attention to the outside size of folder for 3 x 4 prints which is 5 x 8 outside. It presents the popular 3 x 4 from a different point of view, and puts this size in a new class.

The Cover and Insert are surfaced in our drawn linen pattern. Insert is tinted around embossed opening and border in suitable shades. Cover is ornamented with a double tinted and embossed trophy and wreath design.

An exceptionally attractive folder which you will find a tonic for better prices for 3 x 4 and 4 x 6 prints. Finish and design all look new. Write for sample to-day.

Sample of One Size Mailed Free.

MANUFACTURED BY

Canadian Card Co., Toronto, Canada.

Sales that make sales:



Eastman Portrait Albums

To make photographs popular there must be a reason for wanting them and a place to keep them. The Portrait Album supplies both.

The lack of a place to keep photographs has made them less popular in the home—supply the means of keeping a family record and the demand for photographs will increase.

There may be prejudice against the old family album—but not against the idea. The new Portrait Album is sufficiently dignified to overcome prejudice, sufficiently adaptable to conform with present day requirements.

The Eastman Portrait Albums take 87 per cent. of the sizes of portraits now made by photographers. The albums are bound in black, long grained leather. Leaves are furnished for 2, 4, 6 and 8 prints, and the album may be enlarged by means of extra leaves, to twice its normal capacity.

Eastman Portrait Album, either vertical or horizontal, including 12 assorted leaves, . . . \$10.00
Extra leaves for any sized openings, each,40

Above prices are f. o. b. Rochester. For prices in Canada, enquire from your stock house.

EASTMAN KODAK COMPANY,

All Dealers'.

ROCHESTER, N. Y.



*Portrait by Benjamin
Paris, France*



STUDIO LIGHT

— INCORPORATING —

THE ARISTO EAGLE .. THE ARTURA BULLETIN

ESTABLISHED 1901

ESTABLISHED 1906

VOL. 9

JUNE 1917

No. 4

THE PHOTOGRAPHIC RENDERING OF TONE VALUES—II

BY DR. C. E. K. MEES

THE TRANSLATION OF THE TONES
OF THE SUBJECT INTO THE OPA-
CITIES OF THE NEGATIVE

The purpose of the photographic process is to reproduce the scale of tones which occur in the subject photographed as a corresponding scale of tones in the print, and the first step in this is the production of the negative. If this step does not involve any distortion of the scale of tones, we may say that we have a "technically perfect" negative, and we may define a "technically perfect" negative as one in which the opacities of its gradations are proportional to the light reflected by those portions of the original subject which they represent.

In order to understand this

we must define "opacity" and we can do this by saying that the "opacity" is the optical property of a substance—in our case the silver of the negative image—to impede the passage of light through it.

"Transparency" is the inverse of this and is the fraction of the original light which is transmitted, so that a deposit of silver which transmits one-half of the light falling upon it has an opacity of 2. If we have a scale of tones in our subject reflecting light in the proportion of 1-2-5-10-20-50, then the technically perfect negative must let light through in the inverse proportion, that is, must have transparencies of $1-\frac{1}{2}-\frac{1}{5}-\frac{1}{10}-\frac{1}{20}-\frac{1}{50}$. If this result is attained, the negative will be technically perfect and will have fulfilled the first step in the reproduction of the scale of tones which occur in the subject photographed. In the following table is given the relation existing between the scale of tones of the



Fig. 1

subject and the opacities of a "perfect" negative:

Brightness of Different Tones of Subject						
	1	2	5	10	20	50
Transparency of Corresponding Deposits in the Negative						
	1	$\frac{1}{2}$	$\frac{1}{5}$	$\frac{1}{10}$	$\frac{1}{20}$	$\frac{1}{50}$
"Opacity" of Deposits in the Negative						
	1	2	5	10	20	50

If we have a number of these different opacities in a negative and measure the amount of the deposit of silver which produces each, we find that each time the opacity is doubled an equal amount of silver is added to the deposit so that there is a relation between the amount of silver and the opacity, and knowing the amount of silver, we can find the opacity.

The optical quantity corresponding to the amount of silver is called the "density" and the "density" therefore increases by an equal amount each time the opacity is doubled.

Let us try to learn what happens when a plate is exposed to the action of light and is developed. Take a strip of plate and expose a portion of it to light just long enough to show a barely perceptible blackening after

development; then another portion for twice the time, another four times, another eight times, another sixteen times, and so on, so that our strip will finally be made up of steps which have received amounts of light in the proportion of 1-2-4-8-16-32-64-128-256-512. We might do this by making an instrument so that we had different intensities of light in the form of steps and then expose the plate in this instrument, but in practice it is generally more convenient to give a series of different times of exposure. Fig. 1 represents the negative we shall get after development.

If the negative correctly represents these different times of exposure in the opacities obtained, the opacities should be in the same numerical ratio as the times of exposure, that is, they should be 1-2-4-8-16-32-64-128-256-512, and since each time the opacity is doubled the density increases an equal amount, the density (that is, the amount of silver) would be in the proportion 0-1-2-3-4-5-6-7-8-9, as shown in the following table:

Exposures										
1	2	4	8	16	32	64	128	256	512	



*Portrait by Benjamin
Paris, France*



Opacities

1 2 4 8 16 32 64 128 256 512

Densities

0 1 2 3 4 5 6 7 8 9

that is, if we cut an imaginary section through the negative so

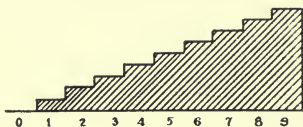


Fig. 2

as to show the height of the deposit of silver, it would look as shown in Fig. 2 or, since this kind of diagram is inconvenient to use, we might represent it by the height of the lines shown in the next diagram:

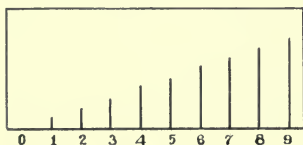


Fig. 3

If we actually try this experiment upon a plate, however, we find that the densities do not show this equal rise with exposure throughout the entire scale. What we get instead is shown in Fig. 4, and this diagram requires careful study. Starting at A and proceeding to B we notice that at the beginning in the lower exposures the steps are marked by a gradually *increasing* rise, and therefore in this part

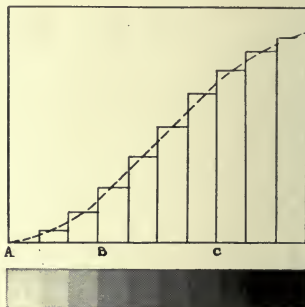


Fig. 4

of the exposure scale there will be *too great* a gain in opacity for each given increase of exposure. A negative the gradations of which fall in this period will yield prints in which an increasing contrast is shown between tones of uniform increase of brightness; that is to say, it will appear what we term "under-exposed." From this period at B we pass imperceptibly into the period where the densities show an equal rise for each equal increase of exposure, and here we have our technically perfect negative, that is, one in which the opacities are exactly proportional to the light intensities of the subject. This is termed the "period of correct exposure," and only through this period of the curve where the opacities are directly proportional to the exposures and where the densities show an equal increase each time the exposure is doubled shall we get a perfect rendering of the



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original subject. From the point C onwards we have a gradually decreasing rise in the steps with increase of exposure until finally the increase of density with further exposure becomes imperceptible. This period is the period of over-exposure, in which the opacities of the negative fail to respond to increasing amounts of exposure and the correctness of rendering is again lost. It will be seen at once, then, from this curve that only through the period of correct exposure where equal increases of exposure are represented by equal rises in density can the tones of the original subject be correctly reproduced in the print.

Now, if we join all these points together instead of representing them as a staircase effect, as is shown by dotted line in Fig. 4, we get a smooth curve, Fig. 5, of which the straight line portion (B to C) represents the period of correct exposure, while the more or less curved portions at the beginning and end of the curve correspond to the periods of under- and over-exposure.

It must be realized that no ordinary negative can show the whole range of exposures from beginning to end of this curve. The ten exposures given correspond to a range of light intensity of from 1 to 512, whereas ordinary subjects have contrasts of about 1 to 32, or six points on the curve.

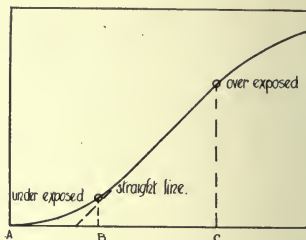


Fig. 5

Suppose we take a subject with a range of contrast of from 1 to 32, then if the exposure 1 is clear glass, the points 1, 2 and 4 will all be on the "under-exposure" part of the curve, only 8, 16 and 32 being on the straight line and the relative gradations of these points 1, 2 and 4 will be incorrect. See Fig. 6.

By giving more exposure, four times as much for example, we get the six points 1 to 32 represented by the points 4-8-16-32-64-128 on the curve. All but 4 and 128 are on the straight line portion and these are very nearly on it, so the reproduction will be almost perfect. See Fig. 7.

If more exposure is given more of the points will fall in the over-exposed part of the curve and reproduction will again be less perfect.

A scale of tone-values will therefore be correctly represented in the negative in so far, and only in so far, as it falls within the straight line portion, the length of the straight line por-



This and the illustration on the following page show the portions of the curve occupied by the contrasts of an under-exposed and a correctly exposed negative of a subject with a range of contrast of from 1 to 32. The under-exposure is flat because half of its contrasts are on the flat portion of the curve. The correct exposure gives correct reproduction because it is on the straight line of the curve.



Fig. 7

Allowance must be made for the inaccuracy of our illustrations because of the inability of the half tone process to give an exact reproduction, also for the fact that we are using prints instead of negatives to illustrate our point. The illustrations show but roughly the difference in quality, which is really great when a subject with a long scale of contrast is reproduced on a long scale plate in comparison with a short scale plate.

tion being technically called the "latitude" of the material.

The capacity of a given material to render a scale of tone-values correctly is therefore *entirely a matter of the length of the straight line portion of the curve* and it is in this respect that negative materials differ in quality. Plates or films made for portrait work are adjusted to have the longest possible straight line portion. The Seed Gilt Edge 30 Plate and Eastman Portrait Film excel particularly in this respect, the Seed 30 Plate having a range of 1 to 256 on its straight-line portion, so that the whole range of light intensities in the longest scale subject can be correctly translated into opacities in a negative made on this plate. Plates made for other purposes, such as commercial and process work, where great contrast is essential, do not have this very long scale straight-line portion to the curve, with its accompanying power of exactly reproducing long scales of gradation. We may say therefore that provided:

- (1) our negative material is made so as to have a long straight line portion to its curve,
- (2) we expose so as to place the scale of intensities of our subject on that straight line portion,

then, we can correctly translate the tones of the subject into cor-

responding opacities in the negative. As we shall see in a later article, it is more difficult to translate correctly the opacities of the negative into the tones of the print.

(To be continued.)



THE 1917 SCHOOL AND WHAT IT OFFERS

Almost every man who sticks closely to his business for a year or more gets into something of a rut. It's just like a boy missing school for a week—he is behind his class, and the man who misses the Eastman Professional School this year will be behind in advanced ideas.

The Professional School does not pretend to teach photography from the bottom up. It is rather a post-graduate course—a series of advanced lectures and demonstrations that are thoroughly practical. Practical men have been selected for the work, other practical men have gone over each new idea and have seen its practical working before it has gone into the program, so there is little chance for any dead wood to creep into the School's work.

Among the interesting things developed for the 1917 School is a model darkroom. The object is to show how a 10 x 12 room can be made a developing, printing and enlarging room all in one, contain all apparatus necessary

for these three lines of work and yet give the maximum amount of room, light, ventilation and convenience for the worker.

It is not possible to carry such a room about the country, but the room was planned and constructed, every piece of apparatus was put in place and photographs were made showing the room complete. A series of slides were made and the pictures are thrown on the screen and explained in detail. There is a new form of overhead lighting that is rapidly being adopted, a plan for keeping chemicals in perfect condition and an excellent idea for judging the density of negatives and determining whether or not they should be reduced, as well as for judging the density of negatives that are to be printed. The latest ideas in developing conveniences are shown, a complete enlarging outfit swings out of the way when not in use and in the same room is a completely equipped printing plant. There is also a scientific method of ventilation that makes such a room as healthful as any in the studio. Everything is arranged with remarkable ingenuity, but with practical efficiency as the governing idea.

There are new things in outdoor portraiture for the summer months of the school as well as new stunts under the skylight, one of these being a demonstration in the posing of feet. Pres-

ent fashions have made this an important consideration in figure work.

New ideas and suggestions for the printing room and enlarging room are of special interest. A new type of enlargement, and the method of making, is shown and explained, and this has repeatedly been said to be worth a trip to the school. The enlargements are not out-of-focus, "fuzzigraphs," but they have a soft porcelain effect and any degree of softness may be repeatedly secured with the lens in perfect focus. It is an entirely new idea and was developed especially for the school. It will surely make your enlargements more attractive and more salable.

Another entirely new idea, and it is a money maker, is the Doretype. The public likes them as much as the photographer, and this point is of prime importance. Doretypes may be made in any color and in several very attractive effects, including facsimiles of Daguerreotypes, but better than these interesting old pictures. Colored miniatures may also be made by the Doretype process.

In commercial photography, the school work is the best ever given and the lectures and demonstrations are very clear, instructive and interesting. Further light on color separation and the use of color filters is given and the value of such in-



*Portrait by Benjamin
Paris, France*



formation in certain lines of work is clearly explained and demonstrated. There is also a lens lecture that makes the things you should know plain and omits the confusing points of most optical talks.

There is also a practical demonstration of dry mounting which shows its many advantages and the great number of uses for a modern dry mounting machine. An electrically heated Dry Mounting Press is used and this machine is now on the market in addition to those heated by gas.

The business lectures are stronger than ever. The practical bookkeeping method, which is now giving the greatest satisfaction in many studios, is thoroughly explained, and practical advertising and its advantages contrasted with poor advertising.

There is an interesting and instructive lecture on retouching and the relation of facial anatomy to expression and the retoucher's work.

Where only the theory of reduction and intensification has been taken up in previous years, actual demonstrations of after-treatment of the negative have been substituted and these practical demonstrations have proved of great interest.

We can't begin to enumerate the new ideas—the practical work and the pithy advice that the 1917 School offers the photographer. Take the time to at-

tend when it is in your locality—give your entire attention to the three days' work and you will decide that it has been worth while.



ADVERTISING FOR YOU

The United States has decided upon its method of raising a great army—is actually selecting it now. The loyalty of our citizens is unquestioned, but we have been taught by experience that those men who can best serve their country in industrial work, by keeping our army and a great part of the world supplied with food, ammunition and supplies, must be conserved.

Selective conscription means that the trained mechanic who prefers army life and the trained sharp-shooter who prefers to dabble in mechanics will not be allowed to follow their preferences, but will be required to serve their country in that capacity which will insure a fighting and industrial army of the greatest efficiency.

Every locality will furnish its quota of men and every photographer can and should secure his share of the business that will naturally come from photographing the men who will make up this army. A man is not compelled to be photographed, but most of them will be, and if you



LOYALTY — first
to country,
then to home.

To cheer those
who cannot serve
as you serve but
whose hearts are
with you—your
photograph.

There's a photographer in your town.

Eastman Kodak Company, Rochester, N. Y.



*Portrait by Benjamin
Paris, France*





*Portrait by Benjamin
Paris, France*



don't advertise for the business now, later on it will go to somebody else.

As soon as a soldier leaves home he will find there is a demand for his portrait in uniform. There will be a demand even before he leaves home, for many of the boys will not go into training at once, and the photographer who advertises for this business now—who makes a display of pictures of men who have enlisted for the Army, the Navy, the Marines, the National Guard, or other military organizations—he will be the busy photographer this year.

We have not lost sight of the fact that we can help the photographer who is willing to advertise for this business. We offered three suggestions last month with three cuts from original drawings made specially for this advertising. This gives you material to start your campaign.

On page fifteen we show a facsimile of a full page ad. which will appear in the June 23rd issue of the *Saturday Evening Post*. With a circulation of almost two millions, practically every man who will serve in our first great army, as well as those who will be interested in having his portrait, will see that advertisement.

It is a strong argument for photographs and will start a definite trend of thought towards the desirability of photographs of those who will make up the first

half million of our army. Again we must emphasize the fact, however, that we can only say to the reader—*"There's a photographer in your town."*

In some cases this may be sufficient to bring you business—but not *all* the business you can get if *you* advertise as well. What of the man who decides he wants photographs—decides he will have photographs made but thinks he may as well put off the matter until he is in actual training? Your advertising will get this business.

You have ample time to get your advertising under way if you begin at once, but there is not more time than you need. It takes some time for advertising to soak in and it takes successive advertising to produce a continuous flow of business just as it takes successive plantings to keep your table supplied with fresh vegetables.

There is still a big demand for the cuts we offered in our advertising suggestions last month. We expect a larger demand this month. Get your order in early and be sure of your cuts.

We leave for the last the one precaution every advertiser for soldier business should take. Don't allow any—*"Be photographed now—to-morrow may be too late"* type of appeals to enter into your copy. One can appeal to sentiment without being pessimistic about it. There are a suf-



THE PRINCES OF BOURBON

*Portrait by Benjamin
Paris, France*



ficient number of good reasons why the soldier should have portraits made for the folks at home that are not of a calamitous nature. A pessimist is a man who "Fletcherizes" all his bitter pills, but it must be remembered that most people prefer to have them sugar-coated and swallow them whole.

The copy on page fifteen is a good example to follow, and since it is to have such wide publicity, it is good copy to repeat in your newspaper advertising. But whatever advertising you may do—do it at once and keep it up until you get results.



MOUNTING ON METAL

As a satisfactory method of mounting photographic prints on metal is not generally known, the following method may be of interest to many commercial photographers.

Prints may be mounted on metal either with a strong solution of shellac in alcohol or with Kodak Dry Mounting Tissue, the latter method being most convenient in most instances.

The solution of shellac is prepared by soaking powdered orange shellac in grain alcohol and stirring at intervals until a thick solution of the nature of thick syrup is obtained. This should

be allowed to settle and the clear liquid poured off. This clear solution is applied to the back of the print in the same manner as photo paste and the print then pressed into contact with the metal. The cement dries very quickly and when dry is not affected by moisture.

In mounting prints on metal with Dry Mounting Tissue, it is necessary to first heat the metal to a temperature slightly under the softening point of the tissue. If an attempt is made to mount the print on the cold metal the tissue will adhere to the print but not to the metal. This is because the heat is rapidly conducted away by the cool metal.

When working with loose metal plates it is only necessary to place the plate in the mounting press for a few seconds, then place the print and tissue in position and again place in the press. If the metal on which the print is to be mounted is of such a shape that it cannot be placed in the press, it may be heated by means of a flatiron, the tissue and print placed in position and covered with a light card and the iron again applied to mount the print.

If the metal is too hot the adhesive properties of the tissue will be destroyed, but there is considerable latitude in working the dry mounting process. The tissue will adhere at temperatures ranging from 120° F. to



*Portrait by Benjamin
Paris, France*



150° F. so that if the metal is heated to a temperature slightly below, and the press to a temperature slightly above this, success in mounting is assured.

Prints can be mounted successfully either on a polished or dull surface provided it is free from grease. In order to be sure of this the metal should be washed with soap and water and dried before prints are mounted.



OUR ILLUSTRATIONS

The majority of photographers in the United States may not be aware of the fact that one of the leading professional photographers of Paris is an American, Mr. Benjamin, formerly of Cincinnati, Ohio.

Mr. Benjamin went to Paris in July, 1906, but had considerable difficulty in finding a suitable location. After several months' search he secured a vacant studio in the most exclusive business section of the city and only a block from the world famous "Place de la Concorde."

After locating himself he was compelled to wait four months for his first client, but in spite of the fact that he was almost totally ignorant of the French language, at that time, and had no influential friends, he did not allow himself to become discouraged.

He was certain that the French

with their artistic nature would appreciate his quite new conception of photography, so he stuck to his venture in the face of these odds. He went to Paris to succeed and the results of his work have come up to his expectations.

Mr. Benjamin is averse to newspaper advertising and one would look in vain for publicity regarding his work in any of the French papers. His friend, Mr. Julius C. Strauss, the St. Louis photographer, said to him one day, "Do not attempt to make your business through your friends but make your friends through your business," and this advice has, in a great measure, been responsible for his success. He proudly asserts that every one of his patrons is his friend and one could not wish for a more solid foundation for success.

Mr. Benjamin uses Eastman products exclusively and prefers these papers and plates to any others. He is a great admirer of Eastman Portrait Film and uses this product exclusively for home portrait work. We regret that the half tone process fails to correctly reproduce the wealth of detail and the warmth and transparency of the shadows that are seen in the original prints. The work, however, is excellent and will be of interest to our readers because it is from the studio of a man who has been successful abroad as well as at home.

BULLETIN: THE EASTMAN SCHOOL OF PROFESSIONAL PHOTOGRAPHY FOR 1917



San Francisco, Calif.	June 12, 13, 14
Portland, Ore.	June 19, 20, 21
Seattle, Wash.	June 26, 27, 28
Spokane, Wash.	July 10, 11, 12
Butte, Mont.	July 17, 18, 19
St. Paul, Minn.	July 24, 25, 26

VACATION



TOZOL

The Complete Developer

Requires the addition of no developing agent. It's right just as it is, and is prepared exactly as it was before the war.

The correct developer for Artura, Azo and Velox.

Note the Reduced Price

1 oz. bottle	\$ 1.10
¼ lb. bottle	4.00
½ lb. bottle	7.75
1 lb. bottle	15.00

Canadian Kodak Co., Limited,

Toronto, Canada

At your dealers'.

The chemicals of greatest importance in the balance and control of a developing solution are the sodas.

Carbonate, the accelerator, controls the speed of development while sulphite, the preservative, retards oxidation and controls the color of the negative.

The developer formulas we recommend for the photographer are the same we use in testing our sensitive material. The accuracy of our tests depends upon the quality and uniformity of the chemicals used in preparing our developers.

That the photographer might secure the best results our sensitive materials would produce—results equal to those secured in our laboratory tests—C. K. Co. Tested Sodas were placed on the market. Sodas of certain strength and purity were of first importance.

Other tested chemicals followed until the line became practically complete. You can buy chemicals with the assurance that they are right for your use if they bear the Tested Chemical Seal.



Canadian Kodak Co., Limited,

Toronto, Canada

All Dealers'.



Kodak Dry Mounting Press

The dry mounting process is the most modern, convenient and efficient method of mounting prints. And as the print you deliver is an advertisement for or against you, its condition after it leaves your hands is important if it is to be a good advertisement.

Dry mounting does not cockle the thinnest mount, holds the print perfectly flat and permits you to deliver prints immediately after they are mounted.

A piece of Dry Mounting Tissue is tacked to the back of the print, the print and mount are slipped into the press and the heat and pressure does the mounting. Prints much larger than the plate of the press may be mounted by giving several impressions. The 5 x 7 and 11 x 14 presses are gas heated. The 11 x 14 press is also furnished electrically heated.

THE PRICE

Kodak Dry Mounting Press, 5 x 7 gas heated . .	\$15.00
Kodak Dry Mounting Press, 11 x 14 gas heated . .	50.00
Kodak Dry Mounting Press, 11 x 14 electrically heated	70.00

Canadian Kodak Co., Limited,

All Dealers'.

Toronto, Canada.

Wratten Filters

Wratten K Filters used with orthochromatic plates enable the photographer to secure the greatest color correction the plates are capable of rendering.

Wratten K and Contrast Filters used with panchromatic plates enable one to secure partial correction, complete correction or over-correction of color values so that colored objects may be photographed lighter, darker or exactly as they appear to the eye.

Orthochromatic Filters

K1—Light yellow for use when short exposures are necessary.

K2—Slightly darker, for the greatest correction on orthochromatic plates.

K3—For absolutely correct rendering on panchromatic plates, but not recommended for other plates.

Contrast Filters

for Panchromatic Plates

G—Strong yellow for rendering yellow objects lighter than they appear—especially suitable for showing grain of oak and yellow woods.

A—Orange-red for mahogany, rosewood, etc.

B—Green for typewriting, rugs, etc.

F—Deep red for dark mahogany, etc.

PRICES OF W. & W. FILTERS

	Gelatine Film Square	B Glass Circles or Squares		Gelatine Film Square	B Glass Circles or Squares
1¼ in. or less . . . \$	.20	\$1.15	2¼ in.	\$.50	
1½ in. . . . .	.25	1.30	2½ in. . . . .	.65	\$2.35
1¾ in. . . . .	.30	1.50	3 in. . . . .	.90	3.00
2 in. . . . .	.40	1.65	3½ in.		4.50
2½ in.		1.80	4 in.		5.40

Canadian Kodak Co., Limited,

Toronto, Canada.

All Dealers'.

The New Developer:

KODELON

(Paramidophenol-Hydrochloride)

An economical and highly successful developing agent, used in connection with Hydrochinon, for all developing-out papers.

It bears the Kodak Tested Chemical Seal.

THE PRICE

1 oz. bottle	. . . . .	\$ .90
$\frac{1}{4}$ lb. “	. . . . .	3.25
$\frac{1}{2}$ lb. “	. . . . .	6.25
1 lb. “	. . . . .	12.00

Canadian Kodak Co., Limited,

Toronto, Canada

All Dealers’.



You can buy uniform materials, but you must give them a fair chance if you expect uniform results.

Temperature is important.

THE EASTMAN THERMOMETER

Accurate—convenient—indispensable in tank development where time and temperature are the governing factors. Made with curved back, easily read degree marks and with hook to suspend it in tank.

Eastman Thermometer \$.65

THE EASTMAN TIMER

makes it simple to time exposures with accuracy and uniformity, and these are necessary for uniformity of print results. The hand splits seconds—the large dial is plainly marked and easily read—the timer runs thirty hours.



The Eastman Timer, \$2.50

CANADIAN KODAK CO., LIMITED.

All Dealers'.

Toronto, Canada

WANTED

DISCARDED NEGATIVES

We purchase discarded negatives of standard sizes from $4\frac{3}{4} \times 6\frac{1}{2}$ to 20×24 , providing same are in good condition and are carefully packed in accordance with our instructions.

We will pay all the freight on shipments of 100 lbs. or more, except from localities where the freight rate exceeds \$1.00 per 100 lbs., in which case the shipper will be required to pay the excess.

Before making any shipment please secure these instructions, prices and further particulars, which will be furnished on application.

Canadian Kodak Co., Limited,

Toronto, Canada.

Department S.

NEW CONTRASTS OF AZO F

For some time we have had Azo F—Glossy—on the market in the Hard contrast, and we are now ready to fill orders for Azo F in the full range of contrasts—Soft, Hard and Hard X. This is Single Weight stock.

The Double Weight of Azo C has always been on a white stock, without the tint of Azo C Single Weight, so that in reality the Double Weight of Azo C is the Double Weight of Azo F, but we shall not at this time rename the Double Weight, as should in strictness be done.

Regular Azo prices apply.

Canadian Kodak Co., Limited,

Toronto, Canada.

All Dealers'.

THE SONATA

Slip-In Style for 3 x 4 and 4 x 6 Oval and Square Prints.

Outside sizes, 5 x 8 and 6 x 9.

Colors, Medium Grey and
Photo Brown.



We wish to draw your particular attention to the outside size of *The Sonata* for 3 x 4 prints, which is 5 x 8. It presents the popular 3 x 4 from an entirely different point of view. The finish and design of folder gives you a style out of the ordinary class and stands out from any other style of folder on the market.

Don't fail to send for sample, as you will find *The Sonata* a tonic for good prices for 3 x 4 and 4 x 6 prints.

Sample of One Size Mailed Free.

MANUFACTURED BY

Canadian Card Co., Toronto, Canada.

Photographic Mountings. Made in Canada.

Sales that make sales:



Eastman Portrait Albums

To make photographs popular there must be a reason for wanting them and a place to keep them. The Portrait Album supplies both.

The lack of a place to keep photographs has made them less popular in the home—supply the means of keeping a family record and the demand for photographs will increase.

There may be prejudice against the old family album—but not against the idea. The new Portrait Album is sufficiently dignified to overcome prejudice, sufficiently adaptable to conform with present day requirements.

The Eastman Portrait Albums take 87 per cent. of the sizes of portraits now made by photographers. The albums are bound in black, long grained leather. Leaves are furnished for 2, 4, 6 and 8 prints, and the album may be enlarged by means of extra leaves, to twice its normal capacity.

Eastman Portrait Album, either vertical or horizontal, including 12 assorted leaves, . . . \$10.00
Extra leaves for any sized openings, each,40

Above prices are f. o. b. Rochester. For prices in Canada, enquire from your stock house.

EASTMAN KODAK COMPANY,

All Dealers'.

ROCHESTER, N. Y.



ARTURA IRIS PRINT, FROM EASTMAN PORTRAIT FILM NEGATIVE

*By Barnum Studio
Cincinnati, O.*



STUDIO LIGHT

— INCORPORATING —

THE ARISTO EAGLE .. THE ARTURA BULLETIN

ESTABLISHED 1901

ESTABLISHED 1906

VOL. 9

JULY 1917

No. 5

THE WAR AND BUSINESS

As a people we have a reputation for being free and easy with our money—we are not naturally economical though there is gradually spreading across the country a wave of economy. We are beginning to realize that we are actually taking an active part in a great world war and that the purpose of that war is to make the world safe for our own and other democracies.

We are the richest nation in the world, but accustomed as we are to large figures the enormous sums already spent in waging the war stagger us. We have had our first opportunity to help finance this war in the Liberty Loan, and we have responded patriotically.

It is estimated that over two and a half million people have contributed to our first war loan. The psychological effect of such

a wide participation in the first effort of our government to finance her allies will awaken many of us to our responsibilities as citizens. It may also temporarily tighten the purse strings of some of the more timid.

Practically all of the vast amount of money represented by this and future loans will be spent here at home for supplies which will be shipped abroad. The money will be put back into circulation—will be used to buy raw material which our workers will turn into finished products—will be put back into seed which the soil will again multiply, so that each succeeding loan will make us all the richer. Business is bound to be good.

Photographs have been classed as luxuries, but in a sense they are not. They are very important in keeping a record of all sorts of events, and especially in keeping a record of the family for posterity. Photography is playing an important part in the

present war and its history will be most graphically written in pictures. But there will also be a very complete picture record of the individuals who are to make our history if the photographers of the country will give wide publicity to the importance of photographing our soldiers.

Photography may to a certain extent be a luxury in time of peace, but when we are sending an army to the front and are preparing other armies to back them up and take their place if need be—then it becomes the duty of every soldier to have a photograph made for the folks who must stay at home.

The photographers of Canada, of England and of France have had all and more than they could do to fill the demand for photographs of their soldiers. Business, and the photographic business in particular, will be better than usual with us though we may find some slight difficulty in securing the volume of help to which we have been accustomed.

Each individual may be required to increase his producing capacity, but this will be a lesson in efficiency that we all need. And it is not so much going without things as it is the eliminating of waste that will be necessary.

And finally, we are to be taught a great business lesson in helping our government to finance the war. The great army of

bond holders, many of whom are buying on the savings plan, will learn the value of systematic savings. The small business man will also learn the value of good business methods. When a fifty or one hundred dollar purchase is subject to two per cent. cash discount and that purchase is made every month, the photographer will more readily see how fifty or one hundred dollars turned over twelve times a year will yield a profit of twenty-four per cent., which is a greater return than can be expected on any other good investment.

The photographer will certainly be a lucky man if he is fully alive to his many opportunities. There will be photographs of the soldiers for the home folks and photographs of the home folks for the soldiers, and in many cases a cheerful word from the photographer will lighten a heavy heart. Be optimistic in all your dealing and most of all in your advertising. A person in search of sympathy doesn't go to a pessimist, and you can most effectively drive customers away from you by dwelling on the morbid arguments for having photographs made in time of war.

Business is good and business will be better.



Make the print on
ARTURA



ARTURA IRIS PRINT, FROM EASTMAN PORTRAIT FILM NEGATIVE

*By Barnum Studio
Cincinnati, O.*



THE PHOTOGRAPHIC RENDERING OF TONE VALUES—III

BY DR. C. E. K. MEES

THE EFFECT OF DEVELOPMENT UPON THE SCALE OF THE NEGATIVE

In the last article of this series, published in the June issue of *STUDIO LIGHT*, we saw that we can represent the way in which the scale of tones which occur in a natural object are translated into the densities of the negative by a curve which is shown in Fig. 1. Throughout the greater

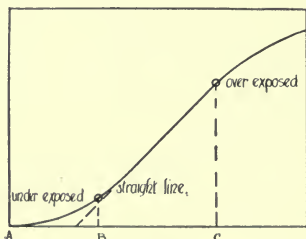


Fig. 1

part of this curve equal increases in exposure are represented by an equal rise in the densities and this portion of the curve corresponds to a technically perfect negative; that is, one in which the opacities of the negative are proportional to the light reflected by those portions of the original subject which they represent. But this proportion between the densities and the exposures does not hold throughout the whole of the curve in what is known

as the period of under-exposure, and again at the end of the curve in the period of over-exposure. The straight line portion of the curve shows the capacity and the limit of a given material to render a scale of tone values correctly.

It is common knowledge that both the contrast and the density of a negative increase during development, and we may therefore ask what effect the amount of development will have upon this curve which shows the relation between the density and the exposure.

If we develop two plates for different times, one for three minutes, let us say, and the other for six minutes, we shall find that the two curves will be identical in shape, and in each of them the straight line portion corresponding to the region through which reproduction will be correct will cover the same range of exposures, but that the steepness of the two curves will

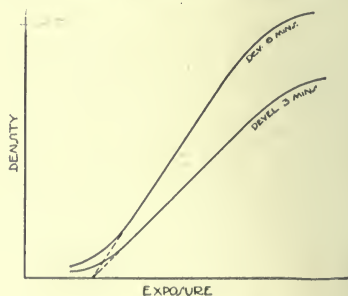


Fig. 2

be different, the curve of the plate developed for six minutes being much steeper than that of the plate developed for three minutes (Fig. 2). This means that as we continue development each density increases to the same proportional extent. We shall not find that our highlights gain density rapidly and then stop or that our shadow detail builds up first and then the highlights gain upon it, as some photographers have thought, but that an increase in development means a proportional increase in every part of the negative scale. If we add 50% to the density of the shadow detail we shall add 50% to the middle tones of the negative and 50% again to the highlights, and since each density increases in the same proportion we get an increase in the contrast shown between the highlights and the shadows. This contrast can be measured from the steepness of the straight line portion of the curves; that is, by the rise in density which corresponds to a given increase of exposure. If, with the units we have chosen, the rise of density is equal to the increase of exposure, then we can say that we have a contrast of unity; if for the same amount of exposure another plate gives twice as much density, we can say that its contrast is two; if it is three times as much, the contrast is three, and so on. (Fig. 3.)

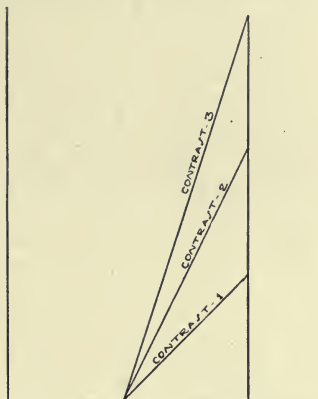


Fig. 3

Therefore, during development the contrast increases. At first it increases rapidly, then the rate of increase begins to fall off and the contrast increases more and more slowly until finally no increase in the time of development will make any difference and the plate has got to the point where it has reached its maximum contrast, the value of which depends upon the plate, but beyond which the contrast cannot be pushed by prolongation of development. In Fig. 4 we see a number of lines showing the contrast obtained with development of one minute, two minutes, four minutes, six minutes, eight minutes, and twelve minutes, and it will be seen that they become closer and closer, and if we develop for a much longer time we reach the limiting value, which is marked in

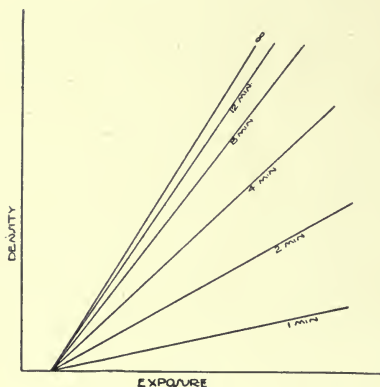


Fig. 4

finity, beyond which no amount of development will push the contrast on that material. If development be further prolonged, we shall only develop fog over the whole plate.

This limit of contrast obtainable depends upon the photographic material. High speed portrait plates have low values of contrast since no portrait requires to be pushed to a contrast exceeding unity. Plates used for landscape work and commercial photography have higher values and will give greater contrast on development. They develop more quickly and easily, give contrasts exceeding the maximum to which the fast materials can be pushed, while the greatest contrast of all is obtained with the special slow emulsions made for process work, where every effort is made to get

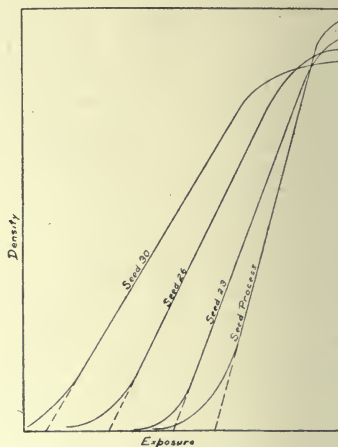


Fig. 5

the greatest possible contrast so as to get clear lines on a completely opaque field. The maximum contrast given by process plates is frequently as high as four, which means that if we have in the original subject two tones one of which is twice as bright as the other, then in the negative, the part representing the higher tones will transmit only one-eighth of the light of that corresponding to the lower tone. Thus, Fig. 5 shows us the curves of Seed 30, Seed 26, Seed 23 and Seed Process plates, each being developed to the maximum contrast available in prolonged development.

Although we cannot obtain a very contrasty negative upon an emulsion designed to give a maximum contrast yet we can obtain soft negatives upon a plate



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*By Barnum Studio
Cincinnati, O.*



having a high maximum contrast by developing for only a short time. In practice, however, every photographer knows that if he uses a plate designed to give great contrast he will not get satisfactory portrait negatives upon it even if the time of development be short. The reason for this is that hard working plates also have a very short scale in the straight line portion, so that only subjects of very limited scale can be rendered on the straight line portion of the curve. A process plate, for instance, will be able to render a contrast of only 1 to 4 correctly as compared with the great range of 1 to 256 obtainable on the Seed 30 plate, so that if a process plate be used for portraiture, even if soft negatives be obtained by short development, the quality of the negatives will be very unsatisfactory.

We must next consider the relation of the contrast to which we develop the negative to the scale of the original subject. Suppose that we have a range of light intensities in our subject from 1 to 100. Then if we develop the negative to a contrast of unity and if the length of the straight line representing the quality of the material and the exposure are such that we get perfect reproduction of those 100 tones in the negative we shall have a negative in which the ratio of the highest transmission

to the lowest transmission is the same as that of the subject; namely, 1 to 100. If this scale is too great for printing on the papers which are available, we can reduce the scale by lowering the contrast of the negative; that is, by developing the negative for less time, which will slightly reduce each tone in the same proportion. On the other hand, in the case of flat subjects, we can increase the available scale of the subject for the printing paper by increasing the time of development, thus increasing the scale of contrast in making the negative.

Provided that the contrast of the subject is not too great for the scale of the negative material and that the exposure is such that the scale of the subject falls on the straight line portion of the curve, then development to a contrast of unity will make the scale of intensities of our negative the exact inverse of the scale of intensities of the subject.

(To be continued.)



ALBUM SALES MAKE MORE SITTINGS

The old portrait album was at the height of its popularity during the Civil War. The new Eastman Portrait Album will be equally popular to-day if you make it so.



ARTURA IRIS PRINT, FROM EASTMAN PORTRAIT FILM NEGATIVE

*By Barnum Studio
Cincinnati, O.*



FIXING BATH ECONOMY

It's a lot better to prevent trouble than to wait until you encounter it and then look about for a remedy. Our demonstrators encounter the same troubles every year as soon as the weather gets hot, and these troubles are almost always with fixing baths.

The chemical nature of an acid fixing bath changes as soon as it becomes hot. It becomes a toning bath and not a fixing bath. It isn't always possible to keep a fixing bath cool, but it *is* easy to make up a fresh one as often as needed. The loss of even a few prints is more expensive than the use of a fresh fixing bath, for hypo is cheaper than paper and the time necessary to make a fresh fixing bath more than offsets the time required to make new prints.

Always have a stock solution of hardener on hand, and a fresh fixing bath then requires only the dissolving of a pound of hypo in sixty-four ounces of water to which eight ounces of hardener is added. The hypo must be thoroughly dissolved before the hardener is added, otherwise sulphur will be released. This will fix two gross of cabinet size paper, or its equivalent, and a smaller or larger quantity can be made up to suit the size of the batch of prints to be fixed.

A fixing bath becomes a toning bath as soon as sulphur has been released, either by chemical ac-

tion or by heating. Any form of acid will release sulphur from hypo and as the hardener contains both alum and acetic acid, it must also contain a sufficient quantity of sulphite of soda to counteract the action of the acids and prevent the release of sulphur.

The hardening solution must be very nicely balanced and it is important that acetic acid should not be stronger than 28%. It is also important that pure sulphite of soda be used, as sulphite that has decomposed becomes *sulphate*, and sulphate of soda does not prevent sulphur being released from hypo. It is readily seen then that if the acetic acid is too strong or there is too much of it, or if the sulphite of soda is partly sulphate or there is too little of it, the balance of the solution is upset and sulphur will be released as soon as the hardener is added to the hypo solution. Be sure of the strength and purity of the chemicals you use for your stock solution of hardener.

When you dissolve a pound of hypo in sixty-four ounces of water, the temperature of the solution is so materially reduced by the dissolving hypo crystals that the hardener may be added and the bath used while cool with the best results. As it is the dissolving of the hypo that drives the heat out of the water, this advantage is entirely lost if the hypo is dissolved and allowed to get warm before it is used. Mix the



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hypo bath at the time you want to use it and throw it away when your prints are fixed.

Worn out fixing baths are probably responsible for as much or more trouble than baths which merely contain sulphur. The sulphurized bath may properly fix a print and also slightly tone it, but a bath which is worn out will not properly fix a print and may also badly bleach and discolor it. The danger lies in the print going bad after it leaves your hands.

A properly made fixing bath removes the unexposed and undeveloped silver from an emulsion by first reducing it to an insoluble silver salt and this in turn is reduced to a soluble salt which is readily removed by washing. The same action takes place in fixing plates as in fixing paper, and they are only properly fixed when they remain in a bath for some time after they become clear.

If a plate fixing bath is weak, and, in the time ordinarily necessary for fixing, only the insoluble silver salt is formed, it can not be removed by washing and as soon as the negative is exposed to light a stain will appear. This stain can not be removed and can not be prevented except by proper fixing in a bath of proper strength. The mere fact that a negative will become clear with long fixing in an old bath doesn't mean that it is fixed. There must be an excess of hypo to render

the silver soluble so that it can be washed out of the gelatine emulsion.

Fixing is the important thing—more important, in fact, than washing. Agitated water will remove half the hypo from a plate in two minutes. In another two minutes half the remainder is removed, and so on until washing is complete. If three-quarters of the hypo is removed in four minutes, fifteen minutes should be time for thorough washing under the proper conditions.

Double the time that it takes to clear a plate should be allowed for fixing, and if the bath is fresh the plate will be better for the long fixing and comparatively short washing, and the gelatine will not likely soften even in hot weather.

Prints should always be washed longer than plates for, while it does not take any longer to remove the hypo from the gelatine, a longer time must be allowed to thoroughly remove the hypo from the paper.

Be sure your fixing baths are fresh and of proper strength, be sure you do not overwork them and be sure that the chemicals that go into your baths are pure. Keep sulphite of soda in an airtight container and do not use acetic acid over 28% strong. You can be sure of your chemicals if you use only those bearing the C. K. Co. Tested Chemical Seal.



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FOGGY NEGATIVES

The men in closest touch with the photographers and with the greatest number of them are the demonstrators, and in a conversation with one of these demonstrators the other day I was told of what appeared to be an epidemic in his particular territory.

A great number of photographers had complained of their negatives lacking in brilliancy, in fact they were so foggy looking that in most instances where the blame had not been laid on the plates, a search had been made for pin holes in the bellows of the camera or for reflecting surfaces that might scatter light and produce the effect. In every instance, however, the trouble was corrected by cleaning the lens.

It seems strange that so common a cause for trouble should be so easily overlooked, but in several cases the trouble was found even where the cleaning of lenses was a regular habit.

Unusual atmospheric conditions had caused this trouble, demonstrating the fact that a regular habit of cleaning lenses is not sufficient to prevent trouble if the cleaning is not done often enough.

The demonstrator showed me a number of interesting pictures of the "before and after" type that he had made to show the

effect of dirty or smoky lenses. An exposure was made on one end of the plate, the portrait being vignetted at the shoulders. The lens was then cleaned, the plate turned end for end and another exposure made through the clean lens.

The difference between the two results was the difference between a good and a bad negative. It is hard to realize how so much damage can be done to the quality of a negative by a coating of dust over a lens surface, but a demonstration shows it very clearly.

The lens surfaces gather moisture and dust particles until there is a coating over the entire surface that more or less effectually scatters and diffuses the light, giving very much the same effect as fog.

The usual way of cleaning a lens is to brush or wipe the dust from the outer surface assuming that the surface inside the camera is sufficiently protected to remain clean. The fact is that dust readily collects inside the camera box and every time the bellows is drawn out and moved back and forth in focusing this dust is stirred up and must settle down again, the lens getting its full share, especially if there is moisture on its surface.

Look over your lenses carefully and keep them clean. And if the air is moist you will have to look them over more often



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than if it is dry. It isn't much trouble and clean lenses have everything to do with clean results.



OUR ILLUSTRATIONS

The Barnum Studio of Cincinnati, so far as its owner, Mr. F. E. Spicker, is concerned, is purely an investment. Mr. Spicker is a manufacturer to whom photography is a side line. But he apparently knew something about photographers when he chose the manager for his studio, for in Mr. C. A. Gillam he has a manager and operator who is both a live wire and a good photographer.

Mr. Gillam has been manager of the Barnum Studio for the entire time it has been in the hands of its present owner, moved the studio from upstairs to its present excellent ground floor location and has developed a profitable home portrait business.

Portrait Film has been used exclusively in this studio for the last two years and has had much to do with the development of the home portrait work. Mr. Gillam is a film enthusiast and the excellent work he is producing on film, both in home and studio work, is proof of his ability as a workman as well as proof of the quality of the material he uses.

Artificial light is used in the

studio, seven 1000 Watt Nitrogen lamps in a cabinet similar to that used at one time in the Eastman School demonstrations, furnishing the illumination. The films are developed in open tanks in the Portrait Film Holders, remaining in same until they are washed and dried.

The convenience of films and the quality of the results they produce are so satisfactory that Mr. Gillam says he can not make his recommendation of films too strong to his fellow photographers.

The advertising which brings the best results to this studio is special letters with a follow-up plan. Aside from this the display windows are considered of greatest importance, and new displays are made weekly.

Our illustrations are from Artura prints from Eastman Portrait Film negatives, and we regret that printers' ink is unable to reproduce this combination of quality in a manner which does justice to the original prints.



Don't forget to sell enlargements from the soldier boys' negatives. If the negative is small, there is all the better chance for an enlargement on Artura Carbon Black for the home folks.



EASTMAN COMMERCIAL FILM

First Portrait Film—then Process Film, and now Commercial Film, the link between the two that gives the film worker a film for practically any class of work he may wish to do.

Eastman Portrait Film has been used extensively for commercial work, and it has proved to be very satisfactory for a great part of the commercial photographer's work.

There has been a demand, however, for a film with a slower emulsion and greater contrast than Portrait Film, but not as slow and not as contrasty as Process Film. The Commercial Film emulsion is similar to that of a Seed 23 Plate, so that it will meet the requirements of the commercial worker.

It has exceptional latitude, allowing for considerable error in exposure, also a very fine grain, which is a great advantage in making enlargements. Negatives made on Commercial Film are practically free from halation, an advantage which every film user fully appreciates and which has created the demand for a greater variety of film emulsions.

For the portrait photographer Commercial Film will be most useful in making copies or transparencies from which duplicate negatives are to be made. When exceptional contrast is desired,

as in photographing maps, drawings, blue prints, etc., Process Film will be found best suited to the work.

Eastman Commercial Film is furnished in regular sizes from $4\frac{1}{4} \times 6\frac{1}{2}$ to 11×14 at the same prices as Portrait Film. Your dealer can supply you.



COPYING PHOTOGRAPHS AND PRINTED MATTER

Occasionally the commercial photographer is called upon to make a copy of a composite picture such as an ordinary photo-

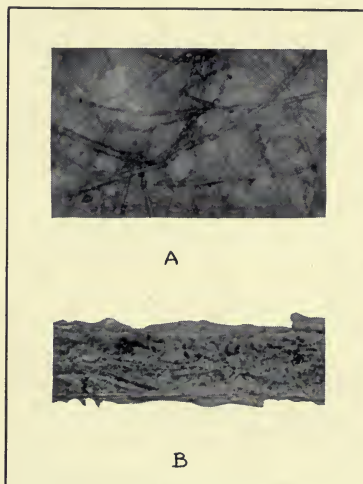


FIG 2

FLAX PAPER

'A' HORIZONTAL SECTION, 88 DIAM.

'B' VERTICAL SECTION, 175 DIAM.

graph ruled about with straight lines and possibly some printed matter, a subject similar to our illustration.

In this class of work the difficulty is to get a negative that will render the masses of detail and the solid lines and printed matter correctly and equally effective. An exposure that will be just sufficient to get the proper amount of contrast in the lines and printed matter will fail to give softness and detail in the photograph. Any attempt to get increased softness and more detail by increased exposure and development will result in a decrease in contrast in the black and white of the lines and printed matter.

One way to get a fairly approximate reproduction is to make an exposure for the proper rendering of contrast in the line and printed matter, then make a mask and cover all the copy except the full tone parts in which detail and softness are required, and give another exposure. In this way a more or less even negative can be secured.

A recent method worked out and applied practically, at the Research Laboratory at Kodak Park, secures with one exposure and an intensification dodge, the best possible result.

Here is the method: Expose and develop for softness and detail in the full tone portion of the copy, ignoring the lines and

printed matter though including them of course. After fixing, wash thoroughly and remove surplus moisture, place the negative perfectly level, in a printing frame, on a printing machine for better illumination, and go over the line portion very carefully with the bleaching solution of Monckhoven's Intensifier. A camel's hair brush is used and great care must be taken to see that no bleaching solution is allowed to drop or run on to the parts that are required to be kept soft.

Monckhoven's Formula is as follows:

- A. Bromide of Potassium, 10 grains.
Bichloride of Mercury, 10 grains.
Water 1 ounce.
- B. Pure Cyanide of Potassium 10 grains.
Nitrate of Silver . . 10 grains.
Water 1 ounce.

The silver and cyanide are dissolved in separate lots of water and the silver added to the cyanide until a permanent precipitation is produced. The mixture is allowed to stand for fifteen minutes and after filtering forms Solution B.

After bleaching and washing the parts that require strengthening, the whole plate is flowed over with the blackening solution B, the procedure now being the same as for ordinary intensification. By these means the line and printed matter is intensified and the contrast between the black and white emphasized



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*By Barnum Studio
Cincinnati, O.*



to give clear whites and deep blacks, while at the same time the photographic part of the copy retains all its softness and detail in highlight and shadow.

The usual plate best suited to the particular results required should be used. In the case of our illustration a Seed 23 Plate was used.

It will be noted that Monckhoven's formula calls for cyanide of potassium, and for the work in question—the production of strong contrasts—no other intensifier is anything like as efficient. Cyanide is not a desirable chemical to have in the dark room, because of its poisonous nature, and it should be handled with care and a due appreciation of its dangerous properties. Any cuts or sores on the hands should, of course, not be allowed to come in contact with either the crystals or the solution. It is used in quantities by the photo-engraver, and old time photographers who worked the wet plate process used it regularly, but those unaccustomed to the use of cyanide should understand that one or two grains of this chemical are fatal. It is advisable to make up a small solution as needed and pour any remaining solution down the sink.



*Watch the work of the man
who uses ARTURA*

FALSE ECONOMY

Economy is a fine thing and any means of reducing waste is economy just so long as quality is not sacrificed. Just as it is economy to use fresh fixing baths and not overwork them, so it is economy not to overwork developers for Artura and similar papers.

The best economy of developer is in using as small a tray as possible for the size of prints that are being developed and having this tray deep enough to contain a quantity of solution. We have given an example of this economy before but it will bear repeating. A 9x11 tray will give a surface of 99 square inches of developer exposed to the air, while an 11x14 tray will give a surface of 154 square inches. If the same amount of developer is placed in each tray there will be 50% more oxidation of the developer in the larger tray and it will not develop as many prints as the same amount of solution of greater depth in the small tray.

The use of trays no larger than is necessary to handle prints is a real economy because any unnecessary oxidation is prevented. And to prevent oxidation is to lengthen the life of the developer and produce prints with the brilliancy and transparency which the paper is capable of yielding.



A little thing—
your photograph—
means much to those
who taught you love
for country.

*Make an appointment
to-day*



THE PYRO STUDIO

Line cut No. 241. Price, 50 cents.

THE ONLY CONDITION
We make but one condition
in our offer of cuts for the use of
photographers.

It is obvious that two photographers in the same town would not care to use the same cut, and we are therefore obliged to limit this offer to one photographer in a town. It will be a case of first come first

served. The first order from a city will be promptly filled. Succeeding orders (if any) will necessarily be turned down and the remittance, of course, will be returned. It is also obvious that we cannot, on account of the cost of the drawings, furnish any large variety of cuts at the nominal prices quoted, and therefore can offer no substitute cut. Get your order in *first*. C. K. CO., Ltd.

BULLETIN: THE EASTMAN SCHOOL OF PROFESSIONAL PHOTOGRAPHY FOR 1917



Butte, Mont. July 17, 18, 19

St. Paul, Minn. July 24, 25, 26

VACATION



Send for the circular describing in detail the

1917

Kodak Advertising Competition

in which Cash Prizes aggregating

\$3,000.00

are to be given for pictures suitable for use in
Kodak advertising.

EASTMAN KODAK COMPANY,
ROCHESTER, N. Y.



Kodak Dry Mounting Press

The dry mounting process is the most modern, convenient and efficient method of mounting prints. And as the print you deliver is an advertisement for or against you, its condition after it leaves your hands is important if it is to be a good advertisement.

Dry mounting does not cockle the thinnest mount, holds the print perfectly flat and permits you to deliver prints immediately after they are mounted.

A piece of Dry Mounting Tissue is tacked to the back of the print, the print and mount are slipped into the press and the heat and pressure does the mounting. Prints much larger than the plate of the press may be mounted by giving several impressions. The 5 x 7 and 11 x 14 presses are gas heated. The 11 x 14 press is also furnished electrically heated.

THE PRICE

Kodak Dry Mounting Press, 5 x 7 gas heated . .	\$15.00
Kodak Dry Mounting Press, 11 x 14 gas heated . .	50.00
Kodak Dry Mounting Press, 11 x 14 electrically heated	70.00

Canadian Kodak Co., Limited,

All Dealers'.

Toronto, Canada.

The chemicals of greatest importance in the balance and control of a developing solution are the sodas.

Carbonate, the accelerator, controls the speed of development while sulphite, the preservative, retards oxidation and controls the color of the negative.

The developer formulas we recommend for the photographer are the same we use in testing our sensitive material. The accuracy of our tests depends upon the quality and uniformity of the chemicals used in preparing our developers.

That the photographer might secure the best results our sensitive materials would produce—results equal to those secured in our laboratory tests—C. K. Co. Tested Sodas were placed on the market. Sodas of certain strength and purity were of first importance.

Other tested chemicals followed until the line became practically complete. You can buy chemicals with the assurance that they are right for your use if they bear the Tested Chemical Seal.



Canadian Kodak Co., Limited,

Toronto, Canada

All Dealers'.

Wratten Filters

Wratten K Filters used with orthochromatic plates enable the photographer to secure the greatest color correction the plates are capable of rendering.

Wratten K and Contrast Filters used with panchromatic plates enable one to secure partial correction, complete correction or over-correction of color values so that colored objects may be photographed lighter, darker or exactly as they appear to the eye.

Orthochromatic Filters

K1—Light yellow for use when short exposures are necessary.

K2—Slightly darker, for the greatest correction on orthochromatic plates.

K3—For absolutely correct rendering on panchromatic plates, but not recommended for other plates.

Contrast Filters

for Panchromatic Plates

G—Strong yellow for rendering yellow objects lighter than they appear—especially suitable for showing grain of oak and yellow woods.

A—Orange-red for mahogany, rosewood, etc.

B—Green for typewriting, rugs, etc.

F—Deep red for dark mahogany, etc.

PRICES OF W. & W. FILTERS

	Gelatine Film Square	B Glass Circles or Squares		Gelatine Film Square	B Glass Circles or Squares
1 $\frac{1}{4}$ in. or less	\$.20	\$1.15	2 $\frac{1}{4}$ in.	\$.50	
1 $\frac{1}{2}$ in. . . . .	.25	1.30	2 $\frac{1}{2}$ in. . . . .	.65	\$2.35
1 $\frac{3}{4}$ in. . . . .	.30	1.50	3 in. . . . .	.90	3.00
2 in. . . . .	.40	1.65	3 $\frac{1}{2}$ in.		4.50
2 $\frac{1}{8}$ in.		1.80	4 in.		5.40

Canadian Kodak Co., Limited,

Toronto, Canada.

All Dealers'.

The New Developer:

KODELON

(Paramidophenol-Hydrochloride)

An economical and highly successful developing agent, used in connection with Hydrochinon, for all developing-out papers.

It bears the Kodak Tested Chemical Seal.

THE PRICE

1 oz. bottle	. . . . .	\$ .90
$\frac{1}{4}$ lb. “	. . . . .	3.25
$\frac{1}{2}$ lb. “	. . . . .	6.25
1 lb. “	. . . . .	12.00

Canadian Kodak Co., Limited,

Toronto, Canada

All Dealers’.



You can buy uniform materials, but you must give them a fair chance if you expect uniform results.

Temperature is important.

THE EASTMAN THERMOMETER

Accurate—convenient—indispensable in tank development where time and temperature are the governing factors. Made with curved back, easily read degree marks and with hook to suspend it in tank.

Eastman Thermometer \$.65

THE EASTMAN TIMER

makes it simple to time exposures with accuracy and uniformity, and these are necessary for uniformity of print results. The hand splits seconds—the large dial is plainly marked and easily read—the timer runs thirty hours.



The Eastman Timer, \$2.50

CANADIAN KODAK CO., LIMITED.

All Dealers'.

Toronto, Canada

WANTED

DISCARDED NEGATIVES

We purchase discarded negatives of standard sizes from $4\frac{3}{4} \times 6\frac{1}{2}$ to 20×24 , providing same are in good condition and are carefully packed in accordance with our instructions.

We will pay all the freight on shipments of 100 lbs. or more, except from localities where the freight rate exceeds \$1.00 per 100 lbs., in which case the shipper will be required to pay the excess.

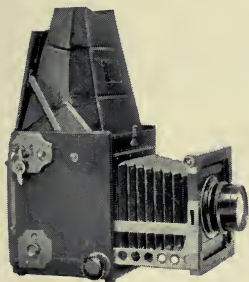
Before making any shipment please secure these instructions, prices and further particulars, which will be furnished on application.

Canadian Kodak Co., Limited,

Toronto, Canada.

Department S.

HOME PORTRAIT GRAFLEX



*Looking into
the Focusing
Hood you
can watch*

the changing composition, lighting effect, and expression of the subject you are about to photograph.

Moving about with the camera in the hands, *exact focus* is maintained upon a brilliant, full *negative size image* on the focusing screen, by a slight adjustment of the focusing button.

Correction of false perspective, and an effective degree of diffusion in draperies, can be obtained by quick adjustment of the special swinging lens board, then—a pressure of the Focal Plane Shutter Release and the pleasing pictorial effect on the focusing screen is secured *instantly*.

Canadian Kodak Co., Limited,

Toronto, Canada.

THE SONATA

Slip-In Style for 3 x 4 and 4 x 6 Oval and Square Prints.

Outside sizes, 5 x 8 and 6 x 9.

Colors, Medium Grey and
Photo Brown.



We wish to draw your particular attention to the outside size of *The Sonata* for 3 x 4 prints, which is 5 x 8. It presents the popular 3 x 4 from an entirely different point of view. The finish and design of folder gives you a style out of the ordinary class and stands out from any other style of folder on the market.

Don't fail to send for sample, as you will find *The Sonata* a tonic for good prices for 3 x 4 and 4 x 6 prints.

Sample of One Size Mailed Free.

MANUFACTURED BY

Canadian Card Co., Toronto, Canada.

Photographic Mountings. Made in Canada.

The whole story of
quality:

ARTURA

Has the longest scale of
gradation of any devel-
oping-out paper made.

CANADIAN KODAK CO.,
LIMITED,
TORONTO, CANADA.



N. B.—We do not handle E-Semi-Matte.

All Dealers'.



ARTURA IRIS PRINT, FROM EASTMAN PORTRAIT FILM NEGATIVE



STUDIO LIGHT

— INCORPORATING —

THE ARISTO EAGLE .. THE ARTURA BULLETIN

ESTABLISHED 1901

ESTABLISHED 1906

VOL. 9

AUGUST 1917

No. 6

WAR PRICES

There are two reasons for raising prices—necessity and opportunity. The first is always valid—the second may be, under some circumstances.

Taking advantage of war time opportunities is, in our opinion, unfair and perhaps, in the long run, bad business. The public, as a rule, does not know whether the producer has advanced his prices from necessity or from opportunity. In many cases he may have been influenced by a combination of both.

The photographic trade has been fortunate in the fact that in the most important item, paper, there has been no advance at all, and that in the next most important item, plates, the net advance has been but slight.

The chemical situation would have been funny if it had not been so serious—or perhaps the real word is aggravating. At the outset of the war all America

was tremendously dependent upon Germany and France for photographic chemicals. To make the goods to which the photographic public had become accustomed was not as easy a task as it would seem to be to the uninitiated. The raw products themselves had been almost cornered for war purposes. On the other hand, a really big shipment of chemicals would be shipped over to the United States once in a while, and prices played around like a kitten with a ball of string. Necessity made everybody put up prices and sometimes a quirk in the market made those prices look absurd.

In papers, however, the situation was different. Costs of raw materials went up—not several thousand per cent. over night, however—and have kept the manufacturer busy in keeping his final costs down to a point where he could still continue to sell at before-the-war prices. If we had been told in August, 1914, that

the war was to last three years or more and that the world markets were to be tied up as they have been, that labor was to go up as it has gone up and that we would still be selling Azo at the old price in August, 1917, our answer would have been: "Impossible."

But we have thus far done it, partly by sacrificing a portion of our profits and partly because increased business has helped to keep down that manufacturer's nightmare "overhead." With bar silver at 80 cents an ounce, with raw paper and gelatine and other important items increased in cost, with labor up 15 to 20 per cent., our task has been a difficult one. The fact that the volume of our business enables us to produce good goods economically has helped; the fact that we make a saving by making some of the raw products also helps. Many manufacturers, for instance, buy their silver nitrate. We not only make our own nitrate of silver, we make and sell hundreds of thousands of ounces of it every year. Yes, and we make the nitric acid with which silver is nitrated. We even go back of that and make the sulphuric acid out of which nitric acid (in combination with nitre) is made.

Similar economies are made all along the line. A big output enables us to eliminate wasteful methods and, to a certain extent, keep down the cost of the mate-

rials that enter into our finished products. Frankly, our percentage of profit on photographic papers has been so far reduced that we can not expect to make it all up on increased volume. But there is a certain satisfaction to us in the fact that in no business, of which we know, have prices been kept down to so nearly a normal level as in the photographic line. And there is a further satisfaction in the part that our organization and our efficiently equipped plants have played in providing important staples at before-the-war prices.

What the future may hold for us, none can tell. But at least, we do not intend that photography shall lose its good record in the matter of price reasonableness. There shall be no price raising except for the one valid reason—necessity. And all the facilities at our command are to be used to avoid that necessity.



FILM KITS FOR PLATE HOLDERS

The Eastman Portrait Film Kit simplifies the use of film in plate holders. The film is placed in the holder, the kit, in the form of a narrow frame, fits in on top and holds the film in place. Your stock house will quote you prices.





BROMIDE ENLARGEMENT, FROM SEED GRAFLEX NEGATIVE

From "Joan the Woman"
Directed by Cecil B. De Mille



THE PHOTOGRAPHIC RENDERING OF TONE VALUES—IV

BY DR. C. E. K. MEES

PRINTING PAPERS

Every photographer is aware that the printing paper must be adapted to the negative used. It is hopeless to attempt to print a strong contrasty negative upon a hard paper made for printing from weak negatives, while on the other hand a weak, flat negative requires a strong printing paper to obtain prints of sufficient snap and contrast. In order to understand this relation between the printing paper and the negative let us consider the way in which printing papers behave when given a series of increasing exposures to light.

We can try the effect of an increasing series of exposures upon a printing paper in exactly the same way as upon a plate, that is, we can give a first exposure just sufficient to get a barely perceptible image after development, then expose another portion for twice the time, another for four times, and so on. We shall get on a strip of paper the effect shown in Fig. 1. Now instead of measuring the light transmitted by the various densities, as we did in the case of the plate, we must measure the light reflected from them. We get a series of "reflection densities" on paper corresponding to

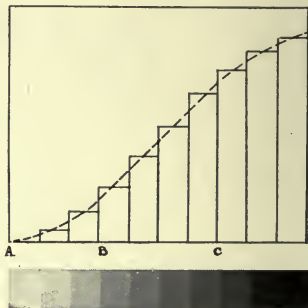


Fig. 1

the transmission densities of the plate and we can express the result in the form of a curve just as we did in the case of the plate.

Thus in Fig. 1 we see that the densities increase gradually at first, as shown on lower portion of the curve, then grow in equal steps for equal increases of exposure, as with the plate, and then the increase not only grows less, but very soon stops altogether, as shown by upper portion of the curve. This result only occurs with a plate with very great exposures indeed. Therefore, a paper is seen to differ from a plate in that we rapidly reach a point where we have obtained the maximum blackness of deposit which the sensitive emulsion is capable of giving and where no further increase of exposure will enable us to obtain a more intense black.

The reason for this is that with the paper we are dealing



Fig. 2

with reflected light, and not with transmitted light, as in the case of the plate, and the light is reflected from three surfaces—from the surface of the gelatine, from the surface of the silver deposit and that which is not absorbed in passing through the silver deposit is reflected from the paper beneath. The effect of the surface reflection of the gelatine can be seen very readily if we measure the maximum black obtainable with different surfaces of paper. A glossy paper (viewed at such an angle that the surface does not reflect light directly into the eye like a mirror) has much the deepest black, the strongest obtainable deposit on such a paper reflecting only 2% of the light falling upon it. A velvet surface will give a less intense black, reflecting about 4%. A matt surfaced paper will give a still less intense black, most matt papers reflecting about 7% of the light from the deepest shadows obtainable. Now the total scale of contrast obtainable from a paper depends upon the ratio of the light reflected from the white paper (taken as 100%) to that reflected from the blackest deposit obtainable, so that

this scale of contrast will vary with the surface of the paper. With matt papers it will be 1 to 15, with velvet papers 1 to 25 and with glossy papers as much as 1 to 50.

In this scale of contrast the eye can discern a certain number of tones. Let us consider a strip of paper giving a complete range of deposits from white paper to the maximum black obtainable on the paper such as can be obtained from a series of increasing exposures (Fig. 2).

How many distinct tones can we see in such a strip? With velvet papers the eye can detect about 100 tones, with glossy papers as much as 150; perhaps 100 tones which can be definitely detected as distinct steps would be a correct average for printing papers in general. Now by the *scale* of a printing paper in exposure units we mean the range of exposures which will give all these hundred tones; that is, if an exposure of one second will just give the first perceptible difference from white paper showing the first trace of tint on the paper, and an exposure of twenty seconds will give the deepest black of which the paper is cap-

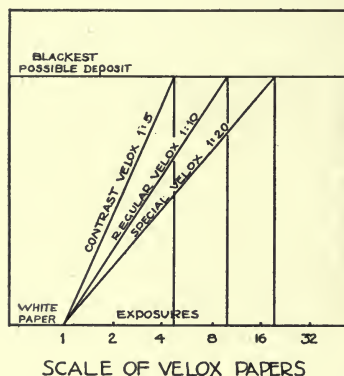


Fig. 3

able so that no increase of exposure will produce any denser black, then we may call the scale of the printing paper 1 to 20.

Different printing papers have different scales of exposures to fit the negatives for which they are intended. Thus the Velox papers, intended for amateur negatives which tend to flatness, give their whole scale of tones with a short range of exposures. An exposure of from one to twenty units will give the whole tone range of Special Velox, from one to ten that of Regular Velox and from one to five that of Contrast Velox, so that with this last very "contrasty" paper we get the maximum black which the paper can give with only five times the exposure necessary to just produce a tint (Fig. 3). The "contrast" of a paper, in fact, chiefly depends upon the "scale" of exposures which will give the

full range of tones from white to black.

The "scales" of papers intended for portraiture, where the negatives are of good quality and have a full scale of gradation, are necessarily greater than is the case with the Velox papers intended for amateur printing. Thus the scale of Artura Iris is 1 to 60.

It must be remembered that the scale of exposures required to give the full range of deposits on a given paper is not an indication of *quality* but only of the *contrast* of the negative to which that paper is adapted. It is

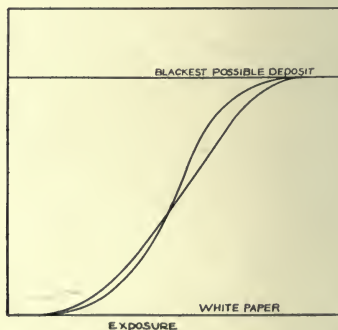


Fig. 4

sometimes suggested that a good paper will give a full range of tones. But *all* papers will give a full range of tones from white paper to the deepest black of which they are capable. The requirement for quality is that they should give this range evenly.

In Fig. 4 we see the way in



BROMIDE ENLARGEMENT, FROM SEED GRAFLEX NEGATIVE

From "Joan the Woman"
Directed by Cecil B. De Mille



which two different papers give their scale of tones with varying exposure. Both give the same range of tones, both require the same range of exposures to give the entire scale, that is, both have the same scale, but in the one the deposit grows evenly with the increase of exposure, while in the other the curve is not straight at all. The deposit at first grows more and more rapidly and then later gains less and less rapidly until the maximum deposit is attained. The paper showing the even growth of deposit has good "quality," that with the uneven growth, although it gives the same maximum black and the same scale, has poor quality.

For papers, therefore, as well as for negative making materials, *quality depends upon the propor-*

tion of the curve which is a straight line, and the straighter the curve, the better the quality.

When the curves of a number of papers were measured it was found that, just as Seed 30 plates stand out among negative making materials by reason of the length of the straight line portion of the curve, so Artura Iris paper is distinguished by its straight curve, marking an even range of tones throughout its entire scale.

In the next article of this series we shall consider how the scale of the printing paper must be related to the negative.

(To be continued.)



THERMOMETERS

Eastman—for tank use . .	\$.75
Stirring Rod Thermometer .	1.00

OFFICIAL ANNOUNCEMENT

AFTER careful consideration looking to the best interests of the Association, the Annual Convention of the P. A. of A. scheduled for Milwaukee, September 3rd to 8th, has been abandoned by the Executive Board.

The American Congress of Photography will meet on Friday and Saturday, August 3rd and 4th, at Cedar Point, immediately following the Ohio-Michigan-Indiana Convention.

The Congress will outline the work to be taken up by the P. A. of A. for the coming year.

RYLAND W. PHILLIPS,

President P. A. of A.



BROMIDE ENLARGEMENT, FROM SEED GRAFLEX NEGATIVE

From "Joan the Woman"
Directed by Cecil B. De Mille



OUR ILLUSTRATIONS

A great many factors enter into the production of a great motion picture play and photography is far from being the least of these. The play is the thing with one part of the public, the actor with the other, but back of the success of both play and actor are the director and the photographer.

The director is responsible for everything but the actual photography. He is especially responsible for photographic effects and when a stage becomes too small for his purpose, he goes to the mountains, the plains or the desert and all go with him.

In the big modern productions there is often much field work, for big effects must be broad. Even lines of telephone communication must be established to enable the director to reach his officers at a distance and to keep in communication with them while they are in the play's action. In this way the director, from the position of the camera operator, can bring a thousand players into range of the camera, can control their every move, stopping, starting or turning them back at will, so that the least possible time is lost and the most realistic effects secured.

A battle scene, for example, is produced in pictures in much the same way it is fought in reality, with the exception that it is

a sham and one general commands both armies.

A part of our illustrations are from the recent big production of the Jesse L. Lasky Feature Play Co., "Joan the Woman," produced under the direction of Cecil B. DeMille, the able director. The character of Joan was taken by Miss Geraldine Farrar, Grand Opera star, and the photography of the entire play is exceptionally fine.

With the production of any motion picture play there must be a number of "stills" and in a big production it is difficult as well as expensive to stop the action of the play even long enough to make these still pictures. They are used for all sorts of publicity and must be of good quality for half-tone reproduction and for showing in theatre lobbies where they are examined close up.

"Stills" are usually posed during rehearsals so that negatives sufficiently large for contact prints may be made. This would not be possible during the action of the play. Exact focus could not be maintained with such a camera and instantaneous exposures made at the instant the director gave the word.

The "stills" of the Lasky productions, however, are action pictures being made with a Press Graflex and Seed Graflex Plates. The photographer moves his Graflex in unison with the motion



BROMIDE ENLARGEMENT, FROM SEED GRAFLEX NEGATIVE

*From "Joan the Woman"
Directed by Cecil B. De Mille*



picture camera and maintains exact focus on the ground glass at all times. The word is no sooner given than an exposure is made, and in an instant the photographer is ready for the next picture. It is the logical way to secure realistic results and the "stills" of the Lasky plays parallel in realism the results shown on the screen.

One might naturally ask, why not enlarge from the motion picture negatives? But on second thought the reason becomes obvious. An 8 x 10 enlargement from a motion picture negative would have to be viewed at a distance of over eleven feet to secure the same effect one gets in viewing contact prints at the usual distance from the eye.

An enlargement from a 5 x 7 negative shows no grain and is in every way as satisfactory as a contact print. And 5 x 7 negatives may be made with a Graflex on Seed Graflex Plates under the same light conditions that will produce satisfactory results with Eastman Cine Film and the extremely fast, short focus lens of the motion picture camera.

Understanding that these pictures are made with the play in action, the results at once become more interesting and the possibilities of the Seed Graflex Plate more wonderful. The reproductions are made from glossy Bromide enlargements.

The remainder of our illustra-

tions show the artistic results that may be secured on Eastman Portrait Film by the use of a soft focus lens.

The reproductions are from Artura Iris prints.



EFFECT OF MOISTURE

Humidity doesn't usually bother a photographer until it affects his bodily comfort along with hot weather, but humidity is a bad thing for sensitized materials, especially paper.

One of the first precautions a photographer should take in damp weather is for the proper storage of paper. A work room containing sinks is more likely to be damp than any other part of the studio. If possible, have a dry cupboard for storing paper outside the work room.

It is a common custom to open a box of paper, remove the wrapping and place the paper back in the box, leaving it unwrapped until it is used up. It is a better plan to take out the paper that is needed, wrap the balance and place it where it will keep dry. There is no need to expose an entire gross of paper to the damp air of the printing room when only a few dozen prints are to be made.

As fast as exposures are made the undeveloped prints are usually placed in a second box kept for



BROMIDE ENLARGEMENT, FROM SEED GRAFLEX NEGATIVE

From "Joan the Woman,"
Directed by Cecil B. De Mille



this purpose. If this box is kept in the work room, it is very likely to become damp and prints will also become damp if left in this box for any length of time before they are developed.

The latent image will fade if exposed prints are not developed for some time, but it will fade more rapidly if the paper becomes damp than if it remains dry. Even a few hours will sometimes make a marked difference, and experiments have shown that under extreme conditions of moisture half an hour is sufficient time to fade an image if it comes in contact with a damp surface.

A clean blotter that had received no moisture other than that absorbed from the air on a damp day was laid on a table and exposed prints were placed in a pile on this blotter. In half an hour the bottom print was developed. A decidedly mottled result showed that where the paper had come in contact with the blotter the image had faded, making the light spots, while the entire print had the effect of slight under-exposure.

There is no known remedy and the best means of prevention is to develop prints as soon as possible after exposures are made.

There is no excuse for allowing prints to lie over night before they are developed and, to maintain uniform quality, it is not advisable to even allow them to lie for a few hours. In any event,

the box in which prints are placed previous to development should always be dry.

When the latent image fades the print has the effect of having been under-exposed. If your printer does not know this and has allowed exposures to stand for some time before development he may imagine he has been under-exposing, that the intensity of his light has decreased or that he has struck an emulsion of paper that is slow. The trouble can readily be detected if a print is made and immediately developed. If the print develops properly the trouble is not with the paper or the printing light but is due to this fading of the undeveloped image.

There is one other cause for fading of the latent image. If an undeveloped print is allowed to lie in a red light for several hours, even though the light is perfectly safe for handling paper without fogging, the latent image will fade considerably. The fading is caused by a chemical action which the red rays of light accelerate, but as undeveloped prints are seldom left face up in a red light, this trouble will seldom be encountered.

Very little is actually known about the latent image, and while theories may be advanced regarding the cause of such troubles as those mentioned above, they are only theories and of no practical value to the man who depends



BROMIDE ENLARGEMENT, FROM SEED GRAFLEX NEGATIVE

From "Joan the Woman"
Directed by Cecil B. De Mille



upon results for his bread and butter. The all important thing is to know how to avoid such troubles.

There is one other trouble occasionally encountered that can be blamed to damp paper but which is due to dampness in the emulsion previous to exposure and development. The image fails to develop in spots and as the rest of the print develops the spot becomes a white irregular marking that appears not to have been coated with emulsion. This trouble seldom occurs when a fresh, normal strength developer is used. The paper has absorbed moisture unevenly and, in spots, repels a developer which is weak in alkali and does not have sufficient penetrating qualities.

A stronger developer contains more alkali and will, as a rule, overcome the trouble. Impure or weak carbonate of soda may have been used in making the developer, in which case more carbonate should be used. In every case where these markings occur, spreading the paper out in a warm dry place will dry out the moisture and overcome the trouble, which shows that it is caused by moisture and not defective coating.

If you do not have a dry place to store paper it is advisable to have a drying box made for this purpose. Any air-tight tin box large enough to hold your stock of paper can be made to answer

the purpose. The important thing is to have it air-tight. The simplest way to keep the air in the box dry is to have a compartment in which to store calcium chloride. This will absorb any moisture admitted when the box is opened. The calcium chloride should be placed in a tin box with a perforated cover and as soon as it becomes damp it should be dried in an oven. It may be used over and over again and will keep the air in the box thoroughly dry if it is dried as often as it becomes moist. Never allow paper to come in contact with the calcium chloride as it will cause spots. Do not leave the box open any longer than necessary and it will not be necessary to dry out the calcium chloride so often.

Calcium chloride may be purchased in anhydrous form and so used or it may be made into a saturated solution and added to the commercial form of asbestos until a thick paste is formed. The asbestos merely makes the calcium chloride more convenient to handle in drying.



The paper of
real quality—

ARTURA

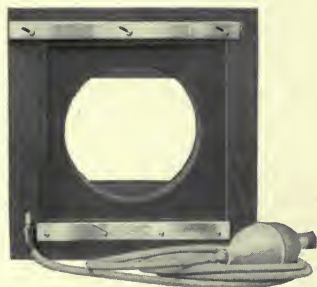




ARTURA IRIS PRINT, FROM EASTMAN PORTRAIT FILM NEGATIVE



NEW F. & S. STUDIO SHUTTER



The new F. & S. Studio Shutter has been designed to meet the demand for an exposing mechanism of simple and durable construction that will operate with such extremely silent and positive action that the operator can give undivided attention to the subject and secure exposures without the subject's knowledge that exposures are being made.

The shutter fits the lens board aperture of the camera, and the exposing curtains, located back of the lens, are actuated by means of a large rubber bulb and tubing.

A slight pressure on the bulb causes the shutter to rapidly and silently open and removal of the pressure results in equally rapid and silent closing.

A greater freedom of movement is afforded the operator by the use of extra tubing, supplied in six-foot lengths, which can be quickly coupled together, per-

mitting the operator to work at any desirable distance from the camera.

Objectionable expansion or kinking of the tubing is prevented by a closely braided outer casing, and the rubber bulb provided is sufficiently large to positively control the shutter curtains when a considerable length of tubing is used.

The shutter is very substantially made with front and lens board finished in polished mahogany, and by means of extra shutter lens boards any number of different lenses can be interchangeably used without removing shutter from the camera.

The F. & S. Studio Shutter is made for Century and F. & S. Cameras only.

F. & S. Studio Shutter No. 1,
for No. 2 Home Portrait
Camera and 8 x 10 Com-
mercial Camera, includ-
ing lens board

Outside Measurements	Opening	Price
7 x 7 inches	4 inches	\$11.00

F. & S. Studio Shutter No. 2,
for 8 x 10 Studio Cameras

Outside Measurements	Opening	Price
9 x 9 inches	5 inches	\$13.00

F. & S. Studio Shutter No. 3,
for 11 x 14 Studio Cameras

Outside Measurements	Opening	Price
10 x 10 inches	5 inches	\$13.00

Prices f. o. b. Rochester, N. Y.



*It is false economy to work
your fixing bath beyond its
power.*



ARTURA IRIS PRINT, FROM EASTMAN PORTRAIT FILM NEGATIVE



REMOVING DEVELOPER STAIN BY REDEVELOPMENT

Everyone knows or should know the advantage of a properly developed pyro negative. The pyro color, if regulated to suit the printing medium, makes it possible to secure a quality of print that represents the best result the negative can be made to produce.

Occasionally, however, in warm weather when the pyro developer has become too badly oxidized to produce negatives of the proper color for the best results or when an old negative is resurrected for a duplicate order, the negative is found to have entirely too much color for best results on a developing-out paper. The removal of at least a part of the excess of color is a decided advantage in such cases, especially when a number of prints are to be made and the time of printing is an important factor or when the stain of the negative affects its contrast to such an extent that a soft print cannot be secured on the grade of paper which is to be used.

To remove all or a part of the color of such a negative or *to remove any developer stain* without in any way affecting the metallic silver deposit which makes up the negative image, is a simple matter, though this method has not been generally used.

The process merely involves the bleaching of the negative and

redeveloping in a pyro or non-staining developer in daylight and is in no way complicated. A trial can be made on an old negative, only a few minutes being required for the entire operation, and when the necessity arises a negative may be cleared of any developer stain and redeveloped to the desired color for quick, clean printing.

If an old negative is to be freed from stain, first remove any varnish that has been placed on the negative for retouching. Then bleach in the following solution until all the silver image is white.

A.

Potassium Permanganate . . .	30 grains
Sulphuric Acid C. P.	3 drams
Water	32 ounces

B.

Sodium Chloride (salt) . . .	$\frac{1}{4}$ ounce
Water	20 ounces

For use take six ounces of A and two ounces of B. When the negative image has been bleached white the gelatine will have a permanganate stain. Rinse the negative thoroughly and place in a 1% solution of Sodium Bisulphite which will clear it of the stain. Rinse the negative again and redevelop in any developer you may desire to use, but development must be carried on in a fairly bright light, as the image in its bleached condition must be acted upon by light before it will again develop.

The explanation of the process is quite simple. The permanganate and acid acts as a reducer in dissolving the metallic silver, but

in the presence of sodium chloride the dissolved metallic silver is immediately transformed into silver chloride and remains in the gelatine, which accounts for the fact that none of the delicate detail of the negative is lost by the process. The silver chloride must be acted upon by light before it

can again be reduced to metallic silver, so it is necessary to develop the bleached image in daylight.

The process will be found very valuable for removing any developer stain, if it is known that the stain is due to the action of the developer, and the process will be found extremely simple.



BULLETIN: THE EASTMAN SCHOOL OF PROFESSIONAL PHOTOGRAPHY FOR 1917



Albany, N. Y. September 4, 5, 6
 Washington, D. C. September 11, 12, 13
 Lynchburg, Va. September 18, 19, 20



Send for the circular describing in detail the
1917 Kodak Advertising Competition
 in which Cash Prizes aggregating

\$3,000.00

are to be given for pictures suitable for use in
 Kodak advertising.

EASTMAN KODAK CO., ROCHESTER, N. Y.



The folks at home want your photograph, in uniform, to be sure, but they may need reminding that you want photographs of them as well.

If you will do the reminding we will make photographs that will please you.

THE PYRO STUDIO

Line cut No. 242. Price, 50 cents.

THE ONLY CONDITION

We make but one condition in our offer of cuts for the use of photographers.

It is obvious that two photographers in the same town would not care to use the same cut, and we are therefore obliged to limit this offer to one photographer in a town. It will be a case of first come first

served. The first order from a city will be promptly filled. Succeeding orders (if any) will necessarily be turned down and the remittance, of course, will be returned. It is also obvious that we cannot, on account of the cost of the drawings, furnish any large variety of cuts at the nominal prices quoted, and therefore can offer no substitute cut. Get your order in *first*. E. K. CO.



The Chemicals bearing this seal —
tested and passed for our use
— make your results certain.

*Look for this seal on the
container and find it.*

Canadian Kodak Co., Limited,
Toronto, Canada.



Kodak Dry Mounting Press

The dry mounting process is the most modern, convenient and efficient method of mounting prints. And as the print you deliver is an advertisement for or against you, its condition after it leaves your hands is important if it is to be a good advertisement.

Dry mounting does not cockle the thinnest mount, holds the print perfectly flat and permits you to deliver prints immediately after they are mounted.

A piece of Dry Mounting Tissue is tacked to the back of the print, the print and mount are slipped into the press and the heat and pressure does the mounting. Prints much larger than the plate of the press may be mounted by giving several impressions. The 5 x 7 and 11 x 14 presses are gas heated. The 11 x 14 press is also furnished electrically heated.

THE PRICE

Kodak Dry Mounting Press, 5 x 7 gas heated . .	\$15.00
Kodak Dry Mounting Press, 11 x 14 gas heated . .	50.00
Kodak Dry Mounting Press, 11 x 14 electrically heated	70.00

Canadian Kodak Co., Limited,

Toronto, Canada.

All Dealers'.

Sales that make sales:



Eastman Portrait Albums

To make photographs popular there must be a reason for wanting them and a place to keep them. The Portrait Album supplies both.

The lack of a place to keep photographs has made them less popular in the home—supply the means of keeping a family record and the demand for photographs will increase.

There may be prejudice against the old family album—but not against the idea. The new Portrait Album is sufficiently dignified to overcome prejudice, sufficiently adaptable to conform with present day requirements.

The Eastman Portrait Albums take 87 per cent. of the sizes of portraits now made by photographers. The albums are bound in black, long grained leather. Leaves are furnished for 2, 4, 6 and 8 prints, and the album may be enlarged by means of extra leaves, to twice its normal capacity.

Eastman Portrait Album, either vertical or horizontal, including 12 assorted leaves, . . . \$10.00
Extra leaves for any sized openings, each,40

Above prices are f. o. b. Rochester. For prices in Canada, enquire from your stock house.

EASTMAN KODAK COMPANY,

All Dealers'.

ROCHESTER, N. Y.

Wratten Filters

Wratten K Filters used with orthochromatic plates enable the photographer to secure the greatest color correction the plates are capable of rendering.

Wratten K and Contrast Filters used with panchromatic plates enable one to secure partial correction, complete correction or over-correction of color values so that colored objects may be photographed lighter, darker or exactly as they appear to the eye.

Orthochromatic Filters

K1—Light yellow for use when short exposures are necessary.

K2—Slightly darker, for the greatest correction on orthochromatic plates.

K3—For absolutely correct rendering on panchromatic plates, but not recommended for other plates.

Contrast Filters

for Panchromatic Plates

G—Strong yellow for rendering yellow objects lighter than they appear—especially suitable for showing grain of oak and yellow woods.

A—Orange-red for mahogany, rosewood, etc.

B—Green for typewriting, rugs, etc.

F—Deep red for dark mahogany, etc.

PRICES OF W. & W. FILTERS

Gelatine Film Square		B Glass Circles or Squares		Gelatine Film Square		B Glass Circles or Squares	
1¼ in. or less	. . . \$.20	\$1.15	2¼ in.	\$.50			
1½ in. . . . .	.25	1.30	2½ in. . . . .	.65	\$2.35		
1¾ in. . . . .	.30	1.50	3 in. . . . .	.90	3.00		
2 in. . . . .	.40	1.65	3½ in.		4.50		
2½ in.		1.80	4 in.		5.40		

Canadian Kodak Co., Limited,

Toronto, Canada.

All Dealers'.

The New Developer:

KODELON

(Paramidophenol-Hydrochloride)

An economical and highly successful developing agent, used in connection with Hydrochinon, for all developing-out papers.

It bears the Kodak Tested Chemical Seal.

THE PRICE

1 oz. bottle	. . . . .	\$ .90
$\frac{1}{4}$ lb. “	. . . . .	3.25
$\frac{1}{2}$ lb. “	. . . . .	6.25
1 lb. “	. . . . .	12.00

Canadian Kodak Co., Limited,

Toronto, Canada

All Dealers’.

WANTED

DISCARDED NEGATIVES

We purchase discarded negatives of standard sizes from $4\frac{3}{4} \times 6\frac{1}{2}$ to 20×24 , providing same are in good condition and are carefully packed in accordance with our instructions.

We will pay all the freight on shipments of 100 lbs. or more, except from localities where the freight rate exceeds \$1.00 per 100 lbs., in which case the shipper will be required to pay the excess.

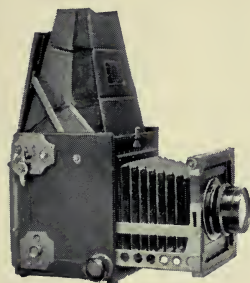
Before making any shipment please secure these instructions, prices and further particulars, which will be furnished on application.

Canadian Kodak Co., Limited,

Toronto, Canada.

Department S.

HOME PORTRAIT GRAFLEX



*Looking into
the Focusing
Hood you
can watch*

the changing composition, lighting effect, and expression of the subject you are about to photograph.

Moving about with the camera in the hands, *exact focus* is maintained upon a brilliant, full *negative size image* on the focusing screen, by a slight adjustment of the focusing button.

Correction of false perspective, and an effective degree of diffusion in draperies, can be obtained by quick adjustment of the special swinging lens board, then—a pressure of the Focal Plane Shutter Release and the pleasing pictorial effect on the focusing screen is secured *instantly*.

Canadian Kodak Co., Limited,

Toronto, Canada.

THE MONA LISA



The Mona Lisa has a striking individuality—it will appeal to your most discriminating customers.

The insert is made of double weight rag stock, rippled finished, and has a heavy hand deckle on all four edges. The smaller insert with the corner holder is tipped to this and is of a similar stock but contrasting shade—pinched edges. The Cover is of lighter weight rag stock, deckled edge, with a raised work color design in upper left corner. The Mona Lisa stocks and color combinations are new and splendidly adapted for all prevailing tones of prints.

A “Corner Holder”

Style for
4 x 6 portraits.

Colors—

Smoke Grey and
Coffee Brown.

SAMPLE MAILED FREE

MANUFACTURED BY

Canadian Card Co., Toronto, Canada.

PHOTOGRAPHIC MOUNTS
MADE IN CANADA

Follow up your orders for small
prints and you can sell large ones.
The contact quality of large

ARTURA CARBON BLACK

prints from small negatives
makes the selling easy.



CANADIAN KODAK CO.,
LIMITED,
TORONTO, CANADA.

All Dealers'.



FROM AN ARTURA IRIS PRINT

By E. L. Mix
New York



STUDIO LIGHT

— INCORPORATING —

THE ARISTO EAGLE .. THE ARTURA BULLETIN

ESTABLISHED 1901

ESTABLISHED 1906

VOL. 9

SEPTEMBER 1917

No. 7

DELIVERING STRAWBERRIES

National advertising will sell anything. But there are a lot of things that advertising will not sell profitably. On some propositions it would be like using a five-ton motor truck to deliver a quart of strawberries. It would be better to employ a boy on a bicycle, provided the boy didn't eat the berries. On the other hand, the truck would beat the boy to a frazzle (the use of this phrase by a prominent personage makes it legitimate) in delivering a couple of hundred bushels of wheat.

We have an important basket of strawberries to deliver to the American public, and only a five-ton truck to deliver them in. For months we have been trying to figure out how to do it. We have solved the problem. We are going to put the basket of strawberries on top of the load of wheat which we also have to deliver. They'll

show up fine—even more prominently than the wheat, but we will be delivering the wheat just the same.

The basket of strawberries is the Eastman Portrait Album. The wheat is the whole idea of "Preserve the Portraits of Your Heroes." When made into flour and then into crispy layers for a shortcake, with strawberries between, it will mean: preserve portraits of all your family and friends, and it will mean preserve them permanently in albums. The albums will invite more pictures, and now that albums are available, the pictures will tempt people to buy *albums*.

We are a nation in arms and we are proud of it. Whether volunteers or drafted we throw our shoulders back when we don the khaki. The folks want our pictures and they are entitled to them. And they want them of a lot of us and they want to be sure there's a place for their safe keeping. Now, right now, is the

logical time for the reinstatement of the family photograph album. Sense and sentiment both demand it.

Every old-time photographer realizes that while an increased variety in the styles and sizes of pictures and mounts helped the business, there was at the same time a disadvantage because the old album would not accommodate the heavy mounts that were then in style. Fashion still calls for mounts and always will, but they are now of a style that makes it easy to remove the prints, and the Eastman Portrait Album will take care of 87% of the sizes now made.

We are putting tens of thousands of dollars into advertising the two ideas: professional portraits of soldiers and albums to preserve them in. We can make the plan work if you, *you* will have the albums in stock and talk them to your customers. On page 5 we show a very much reduced reproduction of a page that will appear in the *Ladies' Home Journal* for November, and similar copy will be used in several other important publications.

If we can get the women to keep soldier pictures in albums, it won't be long before they will keep other portraits in the same way, and presently the Family Album will again occupy the place of honor on the library table.

DARK-ROOM VENTILATION

The important relation which a well ventilated dark-room bears to results is perhaps not always fully appreciated. Numerous troubles which occur and the cause of which seems hard to locate and difficult to explain, are really attributable to poorly ventilated dark or work rooms and would readily disappear if better atmospheric conditions were afforded. This is particularly true in dry plate manipulation and very often frilling and softening of the emulsion is due to no cause other than working in a close, stuffy room.

Photographic emulsions are subjected to hard usage and are frequently abused. The sensitized emulsions of dry plates and papers are extremely delicate and are subject to injury from many causes. When the product goes to pieces under severe treatment the manufacturer is very likely blamed. This, of course, is often a very serious matter with the photographer and sometimes the manufacturer replaces the goods complained of, as a matter of courtesy, though feeling very sure that such goods were not faulty. Most troubles with sensitized goods, however, are found to be due to improper manipulation and to local conditions prevailing in customers' own work rooms.





Keep the Portraits of your Heroes.

GIVE them the care they deserve, securely held in a substantial album along with the pictures of your other friends.

The multiplicity of sizes in which portraits were made sounded the death-knell of the old-fashioned family album—the album that still contains the portraits of the bearded soldiers of the sixties. Its gorgeous red plush cover would have gone anyway, but the album itself would have lived except for the fact that it could not accommodate its stiff, unyielding self to the heavy mounts and the wide variety in sizes and shapes in which portraits came to be made.

Dame fashion decrees now-a-days, however, that prints shall be delivered loose in handsome folders or lightly tipped by the corners on thin mounts, from which they are easily removable. This makes it possible to preserve them permanently in an album and we have provided one for the purpose.



The clever thing about the **Eastman Portrait Album** is that each opening provides, by means of masks, for two or more different sizes of prints, thus accommodating 87% of all the sizes now made.

They provide for 48 prints and will accommodate extra leaves to double this capacity.

There is nothing of the gaudy about them. The covers are black grain leather with the one word, "Portraits," gold stamped in the corner. The leaves are in neutral tints; the workmanship excellent.

Sold both by "The Photographer in your town" and photographic dealers. A little circular describing them in detail will be mailed on request.

EASTMAN KODAK COMPANY, ROCHESTER, N. Y.

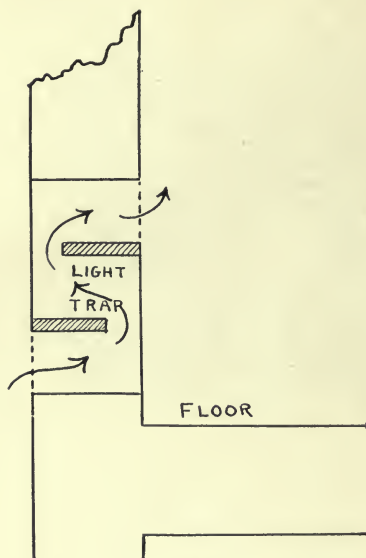


Fig. 1

Important among obscure causes is a lack of ventilation.

The problem which arises is how to ventilate—how to obtain a free circulation of air and still exclude light. In the case of a small dark-room inconveniently placed as regards outside walls this is rather a difficult matter. In the case of the newer and more modern studio buildings, an increasing number of which are being constructed, the problem of ventilation is taken care of in the original plans by a competent architect. We will, therefore, take up the question of how to ventilate the ordinary dark-room which was not properly planned when built.

The logical thing is to induce a circulation of air toward the top of the room, as warm air and impure gases will rise toward the ceiling. Usually an opening cut in the wall or partition near the floor and another similar opening near the ceiling and on the opposite side, if possible, will give a good current of air. To exclude light both openings should be constructed with a "light lock" or "light trap." This is better illustrated than explained, and Fig. 1 will show what is meant. A similar opening should be placed opposite near the ceiling.

If the dark-room is provided with a "light lock" entrance, and for this reason has an ample ingress of air, a single opening for egress near the ceiling would be required. The circulation of air can be advantageously accelerated by an electric fan so placed in the upper opening as to draw the air out of the room.

If the dark-room is on the

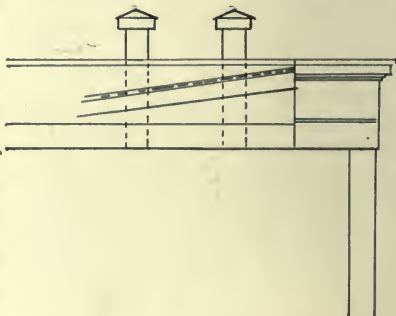


Fig. 2



FROM AN ARTURA IRIS PRINT

By E. L. Mix
New York



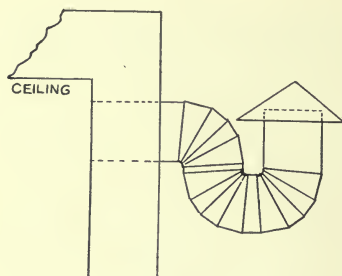


Fig. 3

upper floor two or more revolving ventilators on the roof would take the place of upper wall ventilator. Fig. 2 illustrates this.

The air currents can be regulated by means of shut-offs operated by a cord or chain so that in cold weather too much circulation can be retarded. If dust is found to enter by ventilation openings, muslin stretched over frames should be placed over the openings.

The simplest form of improvised ventilator would be a length of ordinary sheet iron stove pipe with a double elbow leading out from near the ceiling. Cut No. 3 illustrates this.

Too much emphasis cannot be placed on the fact that many of the unexplainable difficulties which sooner or later confront the photographer, are attributable to excessive humidity or incorrect temperature. These conditions can be largely overcome by proper ventilation.



THE PHOTOGRAPHIC RENDERING OF TONE VALUES—V

BY DR. C. E. K. MEES

THE RELATION BETWEEN THE SCALE OF THE PRINTING PAPER AND THAT OF THE NEGATIVE.

In the last article (August *STUDIO LIGHT*, 1917) we defined the *scale* of a printing paper as the range of exposures which would just give all the tones of which the paper was capable, so that if an exposure of one second will just give the first perceptible tint on the paper, and an exposure of twenty seconds will give the deepest black of which the paper is capable, then we call the scale of that printing paper 1 to 20.

Printing papers are made in different contrasts to give different scales, the hardest papers will give all their tones with a scale of exposures of only 1 to 5, while the softest papers require a range of exposures from 1 to 100 to give the entire scale. Now the printing papers used must fit the negatives; that is, we must either have a considerable range of printing papers available to fit negatives of different scales, or else we must make our negatives, by control of the lighting and development, so that they have a scale suitable for the printing paper we wish to use. In the case of profes-



FROM AN ARTURA IRIS PRINT

By E. L. Mix
New York



sional portraiture the latter is the usual and the correct course, the negatives are made to fit the paper, but the amateur finisher has little control over the negatives coming to him and has to keep a stock of various grades of paper to fit them.

By the scale of the negative we mean simply the range of the light intensities transmitted by it. In a very contrasty negative perhaps the blackest part will let through only $\frac{1}{100}$ th of the light transmitted by the clearest portion. In a negative of medium contrast, the densest part will let through about $\frac{1}{20}$ th of the light transmitted by the clearest portion, and in a very flat negative (one that has very little contrast) the densest part may let through as much as one-fifth of the light transmitted by the clearest portion. We should call these three scales, then, a scale of 1 to 100 for the very contrasty negative, 1 to 20 for the negative of medium contrast, 1 to 5 for the flat negative. Now, in printing, we want the printing paper to reverse the scale of light intensities recorded by the negative, as nearly as possible, so that the blackest part of the negative will be the whitest part of the print and the clearest part of the negative will be a deep black in the print; in other words, if we wish the printing paper to fit the negative we must select the grade so that when we

print through the clearest part of the negative and just get the deepest black of which the paper is capable, we shall also only just print through the densest part of the negative so as to slightly tint the paper.

We see then that *the scale of the printing paper must be numerically equal to the range of the light intensities transmitted by the negative.*

Suppose that we attempt to print a negative upon a paper whose scale is much longer than that of the negative. Suppose for instance that we try to make a print on a paper having a scale of 1 to 20 from a negative that has a scale of only 1 to 5. We must time the printing so that the densest part of the negative is just printed through, because, if we underprint, all the tones will be too light and the print will lack detail, and if we overprint the whole print will be too dark. Now, in this case only five times as much light will pass through the thinnest part of the negative as will pass through the densest part of the negative. But the paper requires that twenty times as much light should pass through the thinnest part of the negative as passes through the densest part of the negative in order to give its deepest black in the shadows and only a tint in the highlights, so that, instead of getting a whole scale of tones from white to black in the print,



FROM AN ARTURA IRIS PRINT

By E. L. Mix
New York



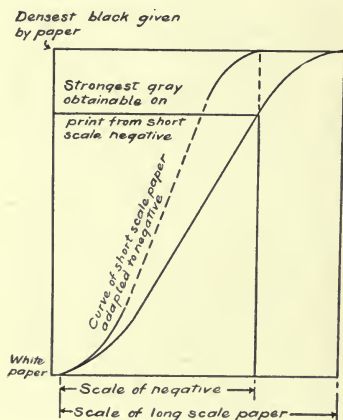


FIG 1

such a paper restricts us to a scale ranging from a white to a gray, the densest part of the low scale (1 to 5) negative being rendered white in the print and the clearest part only gray and not black.

In Fig. 1 this state of affairs is illustrated in the curve. We see that instead of the negative enabling us to give the whole range of tones available on the long scale paper it only gives the range from white to a medium gray. The broken curve shows that by using a short scale paper corresponding to the negative we can obtain the full scale of tones by printing the short scale negative on a short scale paper. Fig. 2 is a reproduction of an actual print in which a negative has been printed on a paper having



Fig. 2

too long a scale for its contrast.

On the other hand, if we print a negative on a paper having too short a scale then we must lose some of the tones of the negative. As is shown in Figs. 3 and 4, we can reproduce the high and middle tones correctly but obtain our shadows blocked up, or, as is shown in Figs. 5 and 6, we must sacrifice our highlights in order to retain a correct rendering of the shadows.

The purpose of making a photograph is to obtain a good print, and we must adjust our procedure throughout to the scale of the printing paper to be used so that we shall get a negative the scale of which will fit the scale of the printing paper and enable us to make the most of the full scale of tones available in a print.

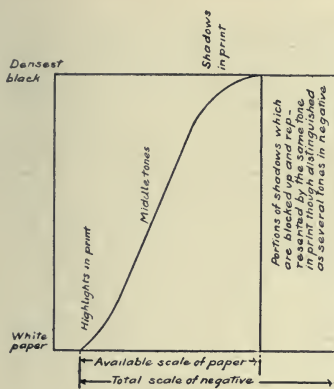


FIG 3

The control of the scale of the negative begins in the lighting of the subject, and although if the subject is one which has too great a range of contrast we can

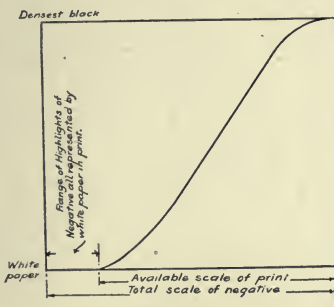


FIG 5

shorten the development of the negative and so obtain a negative which can be printed upon our usual printing paper, yet in practice such modification of the development is dangerous. It requires much experience and skill



Fig. 4



Fig. 6

to obtain really satisfactory results and it is better not only to work to a given printing paper, but



FROM AN ARTURA IRIS PRINT

By E. L. Mix
New York



also to work with a fixed time of development and a developing solution of constant composition used at a uniform temperature, the lighting and the composition of the subject being arranged so that the scale of the negative obtained is adapted to the printing medium employed. The accuracy of reproduction and quality of the print will then depend upon the evenness with which the paper will give its full range of tones; that is, upon the length of the straight line portion of the curve of the printing paper. As we saw in the last article, Artura Iris paper is particularly distinguished by its long range of even tones, so that we shall obtain prints of the highest quality if we make our negatives to fit the scale of Artura Iris paper, choosing, of course, a negative making material, such as Seed 30 plates, having a very long straight line portion in its curve and so having the capacity to reproduce accurately the scale of tones occurring in the original subject.



*October 20th is the closing date
of the*

1917 Kodak Advertising Competition

*Cash Prizes aggregating \$3,000.00
are to be given for pictures suitable
for use in Kodak advertising.*

Circular on request.

OUR ILLUSTRATIONS

As well-to-do New Yorkers migrate to summer homes along the seashore, certain lines of business in the big city are almost at a standstill during the summer months.

The New York photographer whose clientele is made up of this migrating class must also migrate if he wishes to keep busy the year round, otherwise he may as well take a good vacation during the summer months.

"Edward Louis Mix, Home Portraits, 2291 Broadway, New York—Summer Studio, Belmar, N. J.," locates one photographer the year round and at either address he will be found busy and enthusiastic about his work. E. L. Mix needs no introduction to New York photographers, for he has served as president and secretary of the P. P. S. of New York, is chairman of the Metropolitan Section, and is a member of the Professional Photographers' Club of New York City.

Mr. Mix began his photographic career in 1902 and is one of the pioneers in home portraiture. From the time he made his first portraits in the home he has persisted in the belief that portraits with a homely, human interest—natural pictures of natural people made in familiar surroundings were the sort of pictures that would eventually please the public best and do



FROM AN ARTURA IRIS PRINT

By E. L. Mix
New York





FROM AN ARTURA IRIS PRINT

By E. L. Mix
New York



most to establish his reputation as a photographer.

Our illustrations are fair examples of the general run of work which Mr. Mix produces. He considers the recommendations of pleased patrons his greatest asset. A characteristic portrait of mother, father or grandmother is a forceful advertisement of his ability and it reaches all the friends and relatives who receive the pictures. There is also a greater demand for pictures of real human interest. They are valued more, are often framed and made a part of the home where they become something more than an object to fill space. Such pictures are a real pleasure to live with as they grow in interest from day to day.

Mr. Mix believes in other forms of advertising, however, and uses many of the advertising examples we show in *STUDIO LIGHT* from month to month.

Our illustrations should be of special interest to those who have recently taken up home portraiture, representing as they do years of experience in this work.

It is difficult to induce people to visit the big city studios in warm weather, but in the cool summer homes at the seashore conditions are ideal for home portraiture, and it is here that Mr. Mix does some of his most interesting work.

Eastman products, "Tested

Goods," as Mr. Mix puts it, are used exclusively in his studios with a uniform quality of results most pleasing both to himself and his customers.



GETTING NEW BUSINESS

Under the caption "Using the Camera as a Tool of Management," Frank E. Gooding of the editorial staff of *Factory* told in the June number of that magazine of a number of ways in which the camera could be used to advantage in the office and factory. But finding the subject larger than the space allotted him, he was obliged to run a second article — "Thirty - seven Other Ways the Camera Can Help You," in the July *Factory*.

There are few photographers who cannot find time to take on a little extra work, but, as a rule, the photographer is not in a position to suggest ways in which photographs will be useful to the factory manager or superintendent.

Read one or both of the articles above referred to and you will have a fair list of arguments to begin a campaign for business among the factories in your locality. Possibly the man you are soliciting may be interested in these articles and see more uses for your camera than you could suggest. In any case, it may be



FROM AN ARTURA IRIS PRINT

By E. L. Mix
New York



to your interest to make a few experimental negatives, decide upon a schedule of prices for standard sizes and try to secure a contract for all the photographic work the factory may need. As a rule, one use of the camera suggests another, and once the manager sees the advantage of photographic records he will give orders to use photographs whenever and wherever they will add to the efficiency of his organization.

Such an order will establish the use of photographs in that factory and make you and your camera a part of its organization. It is only the getting in that is difficult—once in you become a fixture.

We can give only a rough idea of some of the uses of photographs to factory managers and would suggest that the articles mentioned above be read and studied by photographers who may wish to secure this business.

Photographing damage to machinery often simplifies a report to headquarters, aids in securing new parts quickly and is often instrumental in securing improved machines to supplant antiquated equipment. Photographs of all the parts of a manufactured article also facilitate ordering of new parts, as each part can be numbered on the photograph.

Photographs of blue prints and drawings, reduced to the proper size for filing, are always at hand

when wanted and are better for many purposes than the originals. It is much more convenient for the manager to consult the photograph than a full sized blue print and it will be consulted more often with less tax of memory. It is important that photographs of drawings made to scale should include the scale, or a scale in inches added, so that it will be reduced proportionately.

Carefully plotted curves or tables for calculation are always accurate if photographed and do not need to be checked up.

Photographs are valuable in showing damage to goods in transit, methods of crating or packing unusual articles, storage space occupied by bulky material, methods of assembling, setting up or repairing of complicated machinery, factory arrangement of space or order of handling material most economically, for guidance in fitting up branch factories, etc.

A very important use of photographs is in educational work along safety lines. Pictures will tell their stories so plainly and will make risks so obvious that unsafe practice will become unpopular and accident percentages reduced. Photographs of the right and wrong way of performing a machine operation posted on the factory bulletin board are an object lesson as soon as seen and are especially necessary to



FROM AN ARTURA IRIS PRINT

By E. L. Mix
New York



safety work in factories employing people of many nationalities. The picture language is universal and pictures will do more towards teaching safety methods and checking up violations of safety rules than any other one thing. Lantern slides are also used extensively for safety lectures, and groups of safety committees add interest to shop papers.

Notwithstanding the importance attached to photographic work in many factories there are many more where the photographer is a stranger and the advantages of photographs have been overlooked. Your locality may prove a fertile field of opportunity if you can show the part photographs can play in the economy and efficiency of factory management.

ON TIME

Inability to produce pictures on time has cut down the profits of many photographers during the last two Christmas seasons. There's no indication that 1917 will fall behind 1915 and 1916 in the volume of holiday business, so prepare now to do all the business that will offer in a few short weeks. If you have worried along with a camera or lens that handicaps you, protect your profits by remedying the deficiency before it is too late. The same remarks apply to backgrounds and your general studio fixtures. We would advise you to go over your apparatus and accessories and replace those that have been or are likely to be a cause of loss to you through failure to produce your pictures punctually.



BULLETIN: THE EASTMAN SCHOOL OF PROFESSIONAL PHOTOGRAPHY FOR 1917



Lynchburg, Va.	September 18, 19, 20
Atlanta, Ga.	September 25, 26, 27
Nashville, Tenn.	October 2, 3, 4
Louisville, Ky.	October 9, 10, 11





FROM AN ARTURA IRIS PRINT

*By E. L. Mix
New York*



The Parting Gift

There is always room in the soldier's kit for portraits of the home folks.

Your portrait in a case to fit the soldier's pocket — the ideal gift.



THE PYRO STUDIO

Line cut No. 243. Price 50 cents.

THE ONLY CONDITION

We make but one condition in our offer of cuts for the use of photographers.

It is obvious that two photographers in the same town would not care to use the same cut, and we are therefore obliged to limit this offer to one photographer in a town. It will be a case of first come first

served. The first order from a city will be promptly filled. Succeeding orders (if any) will necessarily be turned down and the remittance, of course, will be returned. It is also obvious that we cannot, on account of the cost of the drawings, furnish any large variety of cuts at the nominal prices quoted, and therefore can offer no substitute cut. Get your order in *first*. C. K. CO., Ltd.

*The more albums you sell, the more
photographs you will sell to fill them.*



Eastman Portrait Album

There has long been need of a practical portrait album for keeping the picture record of the home. The war emphasizes the need of such records—the Eastman Portrait Album supplies the practical means of keeping it.

Adaptable to 87% of the sizes of portraits now made by photographers—bound in long-grained black leather—dignified in appearance—strong and durable. Leaves are furnished for 2, 4, 6 and 8 prints, and by means of extra leaves the albums may be enlarged to twice their normal capacity.

Write your dealer for prices.

EASTMAN KODAK COMPANY

ROCHESTER, N. Y.

Make your dark-room safe.

The Kodak Safelight Lamp



An adaptation of the Wratten Safelight Lamps, equally efficient, but smaller in size. As with the Wratten Lamps, is constructed only for electricity and is furnished with electric socket cord and plug, but without electric globe.

Series 2 Safelight furnished with lamp.

Kodak Safelight Lamp, complete as above . \$4.00

Extra Safelights, 5 x 7, any series, each . . .60

Canadian Kodak Co., Limited,

Toronto, Canada.

All Dealers'.

Get the soldier groups.



Eastman View Camera No. 2

7 x 11

Narrower than 8 x 10, but longer, the proportions of the 7 x 11 are especially suited to either vertical or horizontal subjects. It is a size that fits the group picture, landscape or architectural subject equally well.

A picture of these proportions is suitable for a greater number of subjects than any of the present standard sizes, none of which parallel it. You must see a 7 x 11 print or mark out a 7 x 11 rectangle to get an idea of how suitable it is for groups, landscapes and architectural subjects.

The Eastman View Camera No. 2 is the improved model of Empire State and Century View, and is fitted with every practical convenience that our manufacturing experience has been able to suggest.

The new 7 x 11 size has a swing of unusual latitude and an especially large front board ($13\frac{1}{2} \times 6\frac{1}{4}$ inches) with sliding arrangement permitting the lens to be centered on either half of the plate when making two exposures on the plate.

THE PRICE

Eastman View Camera No. 2, 7 x 11, with case and one
Plate Holder \$45.00

CANADIAN KODAK CO., LIMITED,

All Dealers'.

TORONTO, CANADA.

Your ability as a photographer is judged by the results you produce. To eliminate chance—to make your results certain—use C. K. Co. Tested Chemicals.



Specify C. K. Co. Tested

Canadian Kodak Co., Limited,
Toronto, Canada.

All Dealers'.

The New Developer:

KODELON

(Paramidophenol-Hydrochloride)

An economical and highly successful developing agent, used in connection with Hydrochinon, for all developing-out papers.

It bears the Kodak Tested Chemical Seal.

THE PRICE

1 oz. bottle	. . . . .	\$ .90
$\frac{1}{4}$ lb. “	. . . . .	3.25
$\frac{1}{2}$ lb. “	. . . . .	6.25
1 lb. “	. . . . .	12.00

Canadian Kodak Co., Limited,

Toronto, Canada

All Dealers’.

WANTED

DISCARDED NEGATIVES

We purchase discarded negatives of standard sizes from $4\frac{3}{4} \times 6\frac{1}{2}$ to 20×24 , providing same are in good condition and are carefully packed in accordance with our instructions.

We will pay all the freight on shipments of 100 lbs. or more, except from localities where the freight rate exceeds \$1.00 per 100 lbs., in which case the shipper will be required to pay the excess.

Before making any shipment please secure these instructions, prices and further particulars, which will be furnished on application.

Canadian Kodak Co., Limited,
Toronto, Canada.

Department S.

*Enlivened Interest and Confidence
in your product*

can not be more positively achieved
than by equipping your Studio with a

Century Studio Outfit

The practical simplicity and ease of operation combined with the elegance of design and finish of Century Apparatus, are factors that increase the efficiency and reputation of your Studio.



The approaching Holiday Season suggests giving your early attention to the selection of a Century Studio Outfit that will assure full measure of satisfaction and profit.

CENTURY CAMERA DEPARTMENT

EASTMAN KODAK CO.

ROCHESTER, N. Y.

THE MONA LISA



The Mona Lisa has a striking individuality—it will appeal to your most discriminating customers. The insert is made of double weight rag stock, rippled finished, and has a heavy hand deckle on all four edges. The smaller insert with

the corner holder is tipped to this and is of a similar stock but contrasting shade—pinched edges. The Cover is of lighter weight rag stock, deckled edge, with a raised work color design in upper left corner. The Mona Lisa stocks and color combinations are new and splendidly adapted for all prevailing tones of prints.

A “Corner Holder”

Style for

4 x 6 portraits.

Colors—

Smoke Grey and
Coffee Brown.

SAMPLE MAILED FREE

MANUFACTURED BY

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PHOTOGRAPHIC MOUNTS

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The longest scale of
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Its quality is real—its
success due to superi-
ority.



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*By Morrison Studio
Chicago, Ill.*



STUDIO LIGHT

— INCORPORATING —

THE ARISTO EAGLE .. THE ARTURA BULLETIN

ESTABLISHED 1901

ESTABLISHED 1906

VOL. 9

OCTOBER 1917

No. 8

GOOD BUSINESS AHEAD

There's nothing to be gained by mixing politics with your business. The Military Service Act, 1917, is the law of the land and will be enforced. Under its provisions there will be 100,000 more Canadian soldiers recruited. Your cue is to supply the greatest possible number of the new soldiers with the photographs that are so popular with the men who have already joined up. Some one has expressed the opinion that the drafted men will not be as fond of pictures as the others. This is a mere opinion and has nothing to back it up, other than theory. The new battalions will be as susceptible to the appeal of pictures as were the earlier ones.

When the Great War broke out there were not very many people connected with professional photography in Canada who could see even a dim vision of the business that did develop

from the troops of the C. E. F. The Dominion was in the midst of the contraction that follows commercial over-expansion. The real-estate boom had fallen rather flat. The Western crops had been a bitter disappointment. Things looked sort of blue for the photographic fraternity, who got but little business out of the first 33,000 soldiers, for they sailed for England within six or seven weeks of the declaration of war.

By the time the Second Contingent was organized, the possibilities of the new market for photographs were being realized and ever since that time every photographer has had practically all the work he could do, from military and civilian customers alike. That large volume of business arose out of pure demand, for we have no recollection of any consistent scheme of promotion in the way of advertising.

Over in United States there's an army being raised, and the photographers and manufacturers

are profiting by the experience of Canada.

You have seen in recent numbers of *STUDIO LIGHT* mention of what the Eastman Kodak Company is doing to promote the popularity of photographs among soldiers and civilians, and the other manufacturers are also working on the same proposition, directly and indirectly. The photographers over there are doing their part to carry the message into every home in the States. The photographic business in United States is so good that manufacturers and dealers are literally swamped with orders, and long prices are being obtained for the pictures.

What has all this to do with the Canadian photographers? Well, you need not be told that the *Saturday Evening Post* and the *Ladies' Home Journal* have a huge circulation in Canada. The Eastman "Soldiers' Pictures" advertisements are appearing in these mediums as well as in scores of other publications that are widely circulated in the Dominion. The logical outcome of this advertising will be to promote the demand for photographs with us, and every Canadian photographer will benefit.

We have referred above to the wonderful photographic business that did develop by sheer demand from the C. E. F. That demand can be stimulated and largely increased by advertising.

The military business alone is worth the advertising you will do, but the civilian business that will go with it is by no means to be overlooked. Conditions are far different to-day than they were in the earlier days of the war, for prosperity is general and there are splendid prospects in the field of purely civilian business.

You have it in your power to create all the business you can handle for several months to come, and you are having most effective help. The outcome depends upon yourself.



SIGN YOUR NAME

Did you ever get a letter from a man by the name of "Lmntz"? The initials are either "B" "D" or "C" "L". You look at it from an angle and the first initial resembles a "B". Hold the letter a bit nearer the eyes with the head twisted an inch or so to the left and it becomes a perfect "C". I had a letter from this chap the other day and after five hours close inspection with a magnifying glass I decided that the name was "Lmntz". The office boy agreed with me and added that he thought the Germans had taken him early in the war. The old gentleman was pretty sure that it was "Lumnits" because you could pronounce "Lumnits,"



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and although he had never seen any that was no sign that they didn't exist.

It seemed that "Lmntz" wanted to sell us some studio furniture and suggested that we write to him direct in care of the Sanderson Company. We did want some studio furniture and accordingly I wrote to Mr. Lmntz and the next day a chap by the name of Smith walked in. I couldn't understand and was very firm with Mr. Smith. I said that Mr. Lmntz had been in correspondence with us and we positively declined to do business with any one else. Then I showed him the letter. He explained that he had written the letter and that the signature wasn't "Lmntz" at all but Smith. He said that it spelled "Smith" just as much as anything. I said I agreed with him. I said that it spelled Smith just as much as it spelled reptile or shrinking violet or haberdashery or f. o. b. Detroit.

The reason I'm telling you about "Lmntz" is because I saw a portrait the other day that was so well done that I immediately wanted to know whose work it was. If you know a photographer up in Boston by the name of "Kgjuy" I wish you'd tell him that I think he does mighty fine work.

Any portrait is an advertisement for the studio that makes it and requires a signature, not a hieroglyphic.

WIDE ANGLE VIEWS FROM MATCHED NEGATIVES

Frequently there is a call for a wide angle view to take in a wider range than any lens can cover. This problem is easily handled in the case of landscapes or outside groups by the use of a Panoramic Camera, but sometimes the photographer does not possess one of these instruments or, having one, finds it unavailable in the case of interiors or other subjects where the illumination is such as to require time exposures.

To match up two or more negatives so as to give a continuous view with no signs of a break where the negatives join is not extremely difficult, although requiring careful handling and a right start.

In the first place, it is necessary to make the different negatives from exactly the same point of view, otherwise the lines will not register correctly. To do this the lens must be pivoted exactly over the tripod screw so that when swinging camera from side to side the position of the lens remains unchanged. The camera must also be perfectly level. The position of the camera on the tripod is shown in *Cut No. 1*.

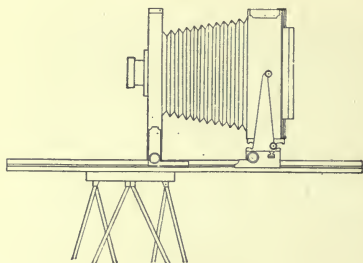
After having made the first negative, the camera should be swung so as to take an additional section of the view, but the



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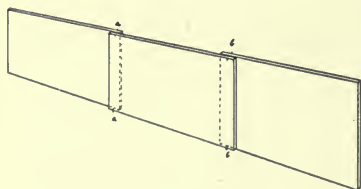




No. 1

second view should lap over into the first one about an inch on an 8 x 10 negative, and the third lap into the second in the same way.

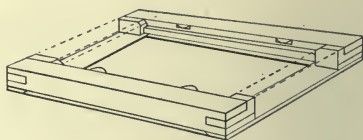
The method of matching and marking negatives is shown in *Cut No. 2*. Negatives may be



No. 2

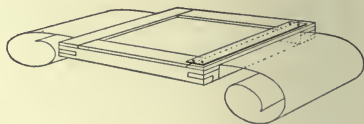
marked by scratching the film at the top and bottom of each pair of plates, or by using a narrow strip of gummed paper and marking with a lead pencil. Marks must come exactly opposite on both plates when negatives are in register. Note *a, a* and *b, b*.

For convenience in printing, it is a good idea to take an ordinary Century printing frame and cut out the ends as shown in



No. 3

Cut No. 3. The dotted lines indicate where the wood has been cut away to prevent paper from creasing.



No. 4

Cut No. 4 shows the method of printing. A continuous strip of sensitized paper long enough for the several negatives is used. One end of the paper is placed in contact with the first negative and is carefully marked to correspond with the marks on the negative. The long end of the paper is then passed out through the printing frame and is rolled up and covered to protect it from the light. A narrow strip of cardboard is tacked on the front of the frame, just over and a little beyond the mark on the negative, as a vignetter. The printing should be done under a diffused light as the idea of the vignetter is to have the print from the



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second negative blend into the first, and the third into the second, so that it will not be easy to see where negatives are joined. The position of the vignetter is most important. If placed too far over, it will give a diffused light line across the print, and if not far enough, a dark line. Some experimenting with narrow strips of printing paper to secure correct adjustment may be necessary where prints are made on developing paper. If printing out paper is used, the print can be examined from time to time and the vignetter shifted slightly as required to get a perfect blend.

After making the first print, the second negative is placed in the printing frame and preparations made for the printing. The mark on the paper which registered with the mark on the first negative must now come in register with the mark on the second negative. The first printing is, of course, rolled up at one end of the frame, and the unprinted section of paper will extend across the negative and is again rolled up and covered.

When printing from the first and third negatives a cardboard strip at only one end of the printing frame is required, but when printing from the second or center negative two strips are required as in this case both ends of the print are to be vignetted. The third print is handled very much the same as the first.

Exact matching and perfect blending depend upon careful marking of negatives and paper, and a correct adjustment of the vignetter. Of course, the negatives should all be of the same character and printed to equal depth.

When photographing interiors, the best place to join the several views is at the corner of a room, some place where vertical lines predominate, although this is not really necessary if when making negatives the lens is correctly centered.



CIRKUT PAPER IN ROLLS

In making up the long rolls of paper for Cirkut prints, such as the 100-foot rolls, it is sometimes necessary to cut the paper before the end of the roll is reached. As cutting the paper might cause the loss of one print out of a roll, three extra feet of paper are added to such rolls, which should in all cases make up for any loss.



It isn't fair to yourself to use a printing process that does not get the best out of your negatives. When you use Artura you can rest assured that your prints are the best your negatives will give.



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D ORETYPES AND HOW TO MAKE THEM

The new style of picture, the "Doretype," which has recently been introduced to the photographic trade through the Eastman School of Professional Photography, has met with an unusual amount of favor from coast to coast.

Photographers who have taken up this new process with the idea of making every picture as attractive as the process permits, have been successful. Doretotypes sell at prices that insure a good profit and permit the necessary amount of care to be given each piece of work.

The popularity of the Doretype is due to its unusual attractiveness, but the effectiveness of the picture depends in a great measure upon the setting it is given. The Doretotypes shown at the Eastman School are mounted in hand-

some leather cases made specially for these pictures. Enquire of your stock-house for them. The pictures in themselves are beautiful, but a handsome case becomes a part of the picture and adds materially to its attractiveness and to your profit.

With edges simply bound or the picture mounted in a frame, even though it be the best frame you can buy, much of the attractiveness of the Doretype is lost. You would not think of framing a Daguerreotype and, like the Daguerreotype, the Doretype needs a fitting setting to show it to the best advantage.

The Doretype is a warm-toned, thin, positive image on glass and receives its brilliancy from the material which is used to back it up. It lends itself to almost any treatment—may be backed with light tinted papers or various shades of fine silk or satin, but the most satisfactory method is



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to coat the back of the transparency with a fine gold bronze.

The following instructions will give a fair idea of the method and a few experiments will enable you to determine how the best results are secured: The first requirement is a clear, thin positive from any good negative. From large negatives the positive should be made by reduction, as the most attractive Doretypes are in small sizes. Give full time and soft development so that the positive will be thin but full of detail. If you must work from a flat negative, a contrasty developer will be required, if your negative is contrasty, a soft developer will be required, while if you have a well-balanced normal negative, a normal developer will give you the best positive. The positive must be thin because the effect of brilliancy is secured by the light reflected from the material used back of the positive. A Seed 23 plate is recommended at the School, but Royal Process plates, though not so fast, yield fine transparencies.

When the positive has been developed, fixed and thoroughly washed it should be re-developed in the re-developing solution recommended for giving sepia tones on Eastman Bromide Paper. The formula is as follows: Make up Stock Solution as follows:

No. 1—Bleaching Solution

Potassium Ferricyanide, 5 ozs.
Potassium Bromide, . 5 ozs.
Water, 120 ozs.

No. 2—Re-developing Solution

Sulphide (not sulphite) of
Soda, 5 ozs.
Water, 60 ozs.

Prepare Bleaching Bath as follows:

Stock Solution No. 1, . 4 ozs.
Water, 4 ozs.

Prepare Re-developer as follows:

Stock Solution No. 2, . 1 oz.
Water, 8 ozs.

Immerse the positive in the Bleaching Bath, letting it remain until only faint traces of the half tones are left and the black of the shadows has disappeared. This operation will take about one minute.

Rinse thoroughly in clean cold water.

Place in Re-developer Solution until original detail returns (for about thirty seconds). Rinse thoroughly, then immerse for five minutes in a hardening bath composed of 1 oz. of the following hardener to 16 ozs. of water.

Water, 5 ozs.
C.K.Co. Sulphite of Soda, 1 oz.
No. 8 Acetic Acid (28%), 3 ozs.
Powdered Alum, . . 1 oz.

The re-developed positive is thoroughly washed and dried and very carefully spotted. It is now ready for backing. If silk is to be used, only the lightest shades and finest surfaces will be found suitable. If tinted paper is used an enameled or very smooth surface is best. Lay the positives on the material to see what the effect will be. If several positives of the same subject are developed to different strengths it will be easy to determine the best quality for Doretype results by plac-

ing the several positives side by side on the same material and comparing the results.

If Doretypes are to be tinted, transparent colors should be used and these should be very carefully blended. Too little color is preferable to too much. A delicate tint against a light background will be found most pleasing. When silk is used as a background it should be backed up with cardboard, cotton and paper. Cut a piece of cardboard the size of the positive, lay a piece of cotton batting on the cardboard, cover the cotton with a heavy sheet of white paper and place the silk over this. Lay the positive on the silk, being careful to see that it is not wrinkled, and passepartout the positive and backing together. By applying a slight pressure while binding the edges the cotton will hold the silk in good contact.

One of the most generally used methods of backing is to coat the film side of the positive with gold bronze. It is necessary to use care in selecting the bronze powder as these pictures are very often small and a coarse grade of powder will give a coarse grain to the picture. A dark gold bronze gives a dull effect that is not pleasing. The best effect is secured by using a very fine, natural-gold-color bronze that will work very smoothly. In most cases this powder can be supplied by the photographic stock houses in

one ounce packages under the name, "Light Gold Photo Coating Powder."

This powder must be combined with a liquid, and it is important to use one that will not affect the silver deposit or the gelatine and that is as nearly colorless as possible. The dark colored bronzing liquids change the color of the bronze and the effect of brilliancy is lost.

The best thing we have been able to find for liquifying bronze powder is Lantern Slide Film Varnish. This varnish is colorless, dries in about thirty minutes and does not affect the silver image or the gelatine. Your dealer should be able to supply this varnish. Use a small amount of the bronze powder and add varnish until the mixture is about the consistency of thin paint. Apply it to the film side of the transparency with a flat, camel's hair brush about $\frac{3}{4}$ " wide and allow to dry with the transparency lying perfectly flat. If the bronze shows brush marks when dry, it has been applied when too thick. The solution should be thin enough to flow together, should be applied quickly and should not be gone over once the entire surface has been covered.

With this method the finished picture should also be backed and edges bound to protect it from moisture. If the positives have been properly handled the results



KODAK

The picture shows a side view of the plant. On the extreme right is the Power Department with coal-trestle attached.



HEIGHTS

In the centre is the eastern end of the manufacturing units which extend in a line for about 750 feet. The smaller building on the left is the Office building.

will be as permanent as the silver image itself.

Don't make Doretotypes in large sizes, don't show them except in appropriate cases, and don't look upon them as cheap novelties. They should rank with miniatures, and they surely give you the opportunity to offer your trade something out of the ordinary for gift pictures.



HANDLING UNDEVELOPED PLATES

Many photographers have a habit of taking exposed plates out of the slides and putting them in a plate box until they are ready to develop. There is nothing wrong with the idea, but the way the plates are laid in the box makes a great difference. The first plate should always be placed in the box glass side down. This prevents the emulsion side from coming in contact with any chemical dust or moisture that may have been taken up by the pulp board of which the box is made.

When you lay the first plate in the box glass side down, and the second plate glass side up, with nothing between the two, you bring the emulsion sides of the two plates together, and they will be perfectly safe until you are ready to develop them.

Traces of perspiration and chemical impurities are transferred from the fingers to the

backs of plates during handling.

These marks from handling will do no harm if the emulsion sides of the plates are always packed together. But if the first plate is laid into a box emulsion side up, and the next plate the same way, the emulsion side of the first plate comes in contact with the finger marks on the glass side of the second plate and these marks are offset on the emulsion. When the plate is developed, the marks sometimes show as distinct finger prints and sometimes only as irregular opaque blotches. Bare hands never come in contact with either the glass or the emulsion side of a plate in manufacture or packing. The plate makers and packers wear clean gloves and they handle the plate entirely by the edges. Plates are always packed in the boxes face to face and back to back.

Handle them the same way in your dark-room and you will not have any of your negatives ruined by finger marks.



THE CROWN PRINTER

The Crown Printer affords the greatest efficiency in a thoroughly substantial and practical printer for both professional and amateur use. If you are in need of a good printing machine, don't make a purchase until you have seen the Crown.



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FROM STANDARD POLYCHROME NEGATIVE

*By Morrison Studio
Chicago, Ill.*



THE HEIGHT OF THE CAMERA

It is not sufficiently realized by some operators how much the height of the camera influences the expression and character of a portrait. When a sitter has been placed in the best position, and the lighting arranged to suit the particular type of face, there are still many modifications that can be made by tilting the camera upwards or downwards. These changes in the position of the camera alter the perspective of the lines of the face and body, and make a difference in the general appearance of the portrait.

Pose a sitter with his head quite level and his eyes fixed on something the same height as the camera. Now lower the camera and tilt it upwards, and you will see that, although the sitter has not altered his position, the head appears thrown back and the eyes turned upwards. Then raise the camera and tilt it downwards, and you will see that the head appears bent forward, the forehead broader and the face more pointed towards the chin.

When you take a head-and-shoulders portrait of a small man with a large bald head, don't have the camera too high—unless you want to emphasize the fact that his head is out of proportion to his body and that his hair has disappeared. On the other hand, when you photograph a stout,

full-faced man with a receding forehead, don't have the camera too low—unless you want him to look more like one of our savage ancestors than a man of to-day.

Then again, in taking full or three-quarter length figures, you can make a sitter look shorter or taller by raising or lowering the camera. A high point of view will fore-shorten a figure and give a squattness to the portrait. This should never be done unless a sitter is abnormally tall and thin. A low point of view will make a sitter look taller. It is extremely useful to remember this when you make portraits of sitters who are below the average height. As a rule, sitters are very sensitive on matters relating to their stature; so much so that very often proofs are accepted or rejected simply because they please, or fail to please, on this particular point.

When children playing on the floor are photographed from a high point of view, the charm of the picture is often destroyed by the foreshortening of the figures. To avoid this the children can be placed upon a platform. But very few professional photographers nowadays will tolerate a cumbersome platform in their studios. The alternative method is to use a studio stand such as the Century Semi-Centennial, which allows the camera to be lowered to within fifteen inches of the floor.



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PROFILES

You cannot make a profile portrait of every sitter. Very few have features so finely chiselled and so well proportioned that they will stand the test of being shown up in outline.

Some sitters do not know this. They take a fancy to a specimen profile portrait and immediately decide to be photographed in the same pose. It requires tact and diplomacy to dissuade them and to get them to leave the final posing to the operator.

There must be something specially attractive in the profile view. From an artistic point it undoubtedly gives plenty of scope to the operator. Broader masses of light and shade can be secured than in the usual front view. There is more hair shown and this forms a valuable shadow against which the half-tone of the face tells very effectively. Then, if a hat is worn, the broad-side view of the brim gives a graceful sweeping line.

But the chief attraction lies in the fact that it awakens curiosity. When you look at the profile of a beautiful woman, or of a man with a strong and interesting personality, you immediately want to get a glimpse of the full face. You want a more satisfying view—you feel that half the beauty and half the character are concealed.

That is why the profile gener-

ally fails to satisfy as a likeness. It is more limited in expression than a full-face or three-quarter view. There is not much chance of revealing character by the expression of the eyes and mouth. Moreover, friends are apt to be more familiar with the features of a face as seen from the front than from the side.

Because of this defect in the profile portrait—because it hides so much—it is very flattering to some sitters. There are faces with clear-cut, well-proportioned outlines, but sadly lacking in expression. These, of course, make quite pleasing pictures in profile. Then again, where the features of a face are well-rounded, and inclined to be a trifle heavy, the profile view, with the head slightly tilted, has a certain amount of grace.

When a sitter, whose face is not specially adapted for it, is really anxious to have a profile portrait, slight defects in the outline may be hidden by a little artful dodging in arranging the pose. For instance, a receding chin is no drawback if it is resting on the hand. Hair can be arranged to hide or subdue a receding forehead.

In all profile views, however, the most important point is to see that the direction of the eyes is in keeping with the pose of the head. The head may be tilted, it may be perfectly straight or it may be lowered. In any of

these poses the eyes must look in the same direction as the face; otherwise some unusual or undesirable feeling will be expressed. This, of course is very useful when photographing actors and actresses as different characters, but it is unsuited to ordinary portraiture where natural likeness is aimed at.

Carefully posed profile portraits make charming pictures, but do not forget that they lose their interest sooner than the portrait which shows the eyes and mouth.



THE CHOICE OF A LENS

Many professionals do not realize how much their work would be improved by the use of a long-focus lens. Examples of distorted perspective, caused by working with the camera too near the sitter, can be seen in many windows and showcases. There are bust portraits with their near shoulders looming up half as large again as the far shoulders; there are three-quarter lengths with hands out of all proportion; and there are large heads with noses that look so bulbous that they are a libel on the sitters.

There is always a danger, where space is limited, of getting into the habit of making one lens do for all kinds of work. Bad effects are sure to follow.

OUR ILLUSTRATIONS

Mr. W. M. Morrison, the founder and, until 1911, the proprietor of the Morrison Studio of Chicago, established a business that has probably been as widely advertised and as well known as any photographic business in the country.

It has always been the policy of this studio to make good, clean-cut photographs for which there always has been and always will be a ready sale at a good profit.

Much of Mr. Morrison's success was undoubtedly due to his good judgment in surrounding himself with competent employees. This is shown by the fact that since the studio changed hands in 1911 it has been under the able management of the head of the printing department and the head receptionist, both of whom were, for years, valued employees of Mr. Morrison.

While Morrison portraits are especially well known to the theatrical profession throughout the country, the studio also has an excellent class of trade that is not of a professional nature. By very efficient management both classes of work, as well as a considerable amount of commercial work, are handled in quantities with no trace of confusion or congestion in the reception, operating or finishing departments.

Due credit is given to Plates and Papers bearing the Eastman label, for their part in building the Morrison reputation for portraits of quality. Our illustrations are from the regular run

of Artura prints from Standard Polychrome negatives, a combination that has been found to produce results most satisfactory to both the management and patrons of this studio.

BULLETIN: THE EASTMAN SCHOOL OF PROFESSIONAL PHOTOGRAPHY FOR 1917



Davenport, Ia.	October 16, 17, 18
Milwaukee, Wis.	October 23, 24, 25
Grand Rapids, Mich.	Oct. 30, 31, Nov. 1
Toledo, Ohio	November 6, 7, 8

VACATION

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(Paramidophenol-Hydrochloride)

An economical and highly successful developing agent, used in connection with Hydrochinon, for all developing-out papers.

It bears the Kodak Tested Chemical Seal.

THE PRICE

1 oz. bottle	\$.90
$\frac{1}{4}$ lb. "	3.25
$\frac{1}{2}$ lb. "	6.25
1 lb. "	12.00

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home folks carry
warmth and comfort
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THE PYRO STUDIO

Line cut No. 244. Price, 50 cents.

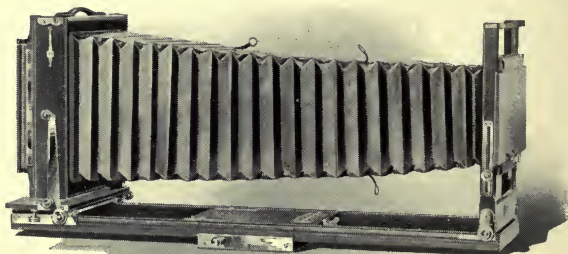
THE ONLY CONDITION

We make but one condition in our offer of cuts for the use of photographers.

It is obvious that two photographers in the same town would not care to use the same cut, and we are therefore obliged to limit this offer to one photographer in a town. It will be a case of first come first

served. The first order from a city will be promptly filled. Succeeding orders (if any) will necessarily be turned down and the remittance, of course, will be returned. It is also obvious that we cannot, on account of the cost of the drawings, furnish any large variety of cuts at the nominal prices quoted, and therefore can offer no substitute cut. Get your order in *first*. C. K. CO., LTD.

Get the soldier groups.



Eastman View Camera No. 2

7 x 11

Narrower than 8x10, but longer, the proportions of the 7x11 are especially suited to either vertical or horizontal subjects. It is a size that fits the group picture, landscape or architectural subject equally well.

A picture of these proportions is suitable for a greater number of subjects than any of the present standard sizes, none of which parallel it. You must see a 7x11 print or mark out a 7x11 rectangle to get an idea of how suitable it is for groups, landscapes and architectural subjects.

The Eastman View Camera No. 2 is the improved model of Empire State and Century View, and is fitted with every practical convenience that our manufacturing experience has been able to suggest.

The new 7x11 size has a swing of unusual latitude and an especially large front board ($13\frac{1}{2} \times 6\frac{1}{4}$ inches) with sliding arrangement permitting the lens to be centered on either half of the plate when making two exposures on the plate.

THE PRICE

Eastman View Camera No. 2, 7 x 11, with case and one
Plate Holder \$45.00

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The obvious way to make business is to create a demand for what you have to sell—photographs.



Eastman Portrait Albums

create a demand by supplying a practical, substantial and convenient means of caring for portraits as they should be cared for. They are adaptable to 87% of the sizes of portraits now made by photographers.

The more albums you sell, the more photographs you will sell to fill them.

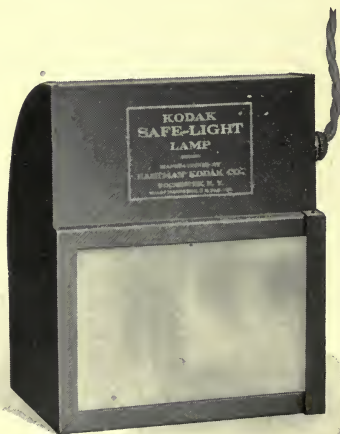
EASTMAN KODAK COMPANY

ROCHESTER, N. Y.

All Dealers'.

Make your dark-room safe.

The Kodak Safelight Lamp



An adaptation of the Wratten Safelight Lamps, equally efficient, but smaller in size. As with the Wratten Lamps, it is constructed only for electricity and is furnished with electric socket and cord, but without electric globe.

Series 2 Safelight furnished with lamp.

Kodak Safelight Lamp, complete as above . \$4.00

Extra Safelights, 5 x 7, any series, each . . .60

Canadian Kodak Co., Limited,

Toronto, Canada.

All Dealers'.

The difference between poor results and the best results is often the difference between poor chemicals and the best chemicals.

*Look for this seal and be
certain of quality.*



Canadian Kodak Co., Limited,
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All Dealers'.

WANTED

DISCARDED NEGATIVES

We purchase discarded negatives of standard sizes from $4\frac{3}{4} \times 6\frac{1}{2}$ to 20×24 , providing same are in good condition and are carefully packed in accordance with our instructions.

We will pay all the freight on shipments of 100 lbs. or more, except from localities where the freight rate exceeds \$1.00 per 100 lbs., in which case the shipper will be required to pay the excess.

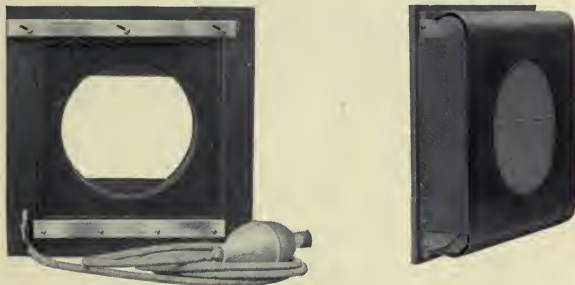
Before making any shipment please secure these instructions, prices and further particulars, which will be furnished on application.

Canadian Kodak Co., Limited,

Toronto, Canada.

Department S.

The F. & S. Studio Shutter



A silent and rapid exposing mechanism that is built for service; requires no setting, and can be operated with a positive action from any desirable distance.

The exposing curtains, located back of the lens, open from, and close to the center of the shutter aperture, with a slight pressure and release of the powerful rubber bulb.

The front of the F. & S. Studio Shutter is finished in polished mahogany and neatly fits the lens board aperture of the Century Studio Cameras; the F. & S. Commercial and No. 2 Home Portrait Cameras.

Lenses of different focal lengths, fitted to extra shutter lens boards, may be used interchangeably with one shutter.

Ask your dealer for descriptive circular.

FOLMER & SCHWING DEPARTMENT

EASTMAN KODAK CO.

ROCHESTER, N. Y.

THE MONA LISA



The Mona Lisa has a striking individuality—it will appeal to your most discriminating customers.

The insert is made of double weight rag stock, rippled finished, and has a heavy hand deckle on all four edges. The smaller insert with the corner holder is tipped to this and is of a similar stock but contrasting shade—pinched edges. The Cover is of lighter weight rag stock, deckled edge, with a raised work color design in upper left corner. The Mona Lisa stocks and color combinations are new and splendidly adapted for all prevailing tones of prints.

A "Corner Holder"

Style for

4 x 6 portraits.

Colors—

Smoke Grey and
Coffee Brown.

SAMPLE MAILED FREE

MANUFACTURED BY

Canadian Card Co., Toronto, Canada.

PHOTOGRAPHIC MOUNTS

MADE IN CANADA

The longest scale of
uniform gradation is
secured in the print on

ARTURA

Its quality is real—its
success due to superi-
ority.



CANADIAN KODAK CO.,
LIMITED,
TORONTO, CANADA.

All Dealers'.



FROM AN EASTMAN BROMIDE PRINT

*By Geo. F. Wetlin
Newark, N. J.*



STUDIO LIGHT

— INCORPORATING —

THE ARISTO EAGLE .. THE ARTURA BULLETIN

ESTABLISHED 1901

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No. 9

SELLING ENLARGEMENTS

A marked feature of the business done by professional photographers this year has been the great increase in the number of enlargements sold in good class studios. For some years enlargements have been neglected by a good many photographers, largely because they have felt that the public associated enlargements with the cheap crayon productions at one time sold by agents.

That this feeling on the part of the public did exist cannot be gainsaid. Whether photographers did what was best for themselves in treating it as they have is another matter. Here and there, scattered about the country, are photographers who have kept on selling enlargements. These men have found that if they offer enlargements as good as their smaller work they can sell a number in the course of the year. They have proved that the public

which is willing to pay the price of a good photograph, is, very frequently, willing to pay the price of a good enlargement as well.

But it must be a *good* enlargement. The photographers who have made, and are making, a success of enlargements as a "side line," are those who have realized that their customers can tell as readily as themselves the difference between the good and the bad. These people may not understand why one is better than the other, they may not know anything about the methods of production—but they do know just as well as the photographer whether the total effect is pleasing or not.

Enlargements up to 10 x 12 or 12 x 15, especially when "solid" from dark-background negatives, may well be made in the photographer's own workrooms. But successful enlarging calls for a high standard of negative production. Pinholes, scratches and other development markings, as

well as faulty retouching, all show up badly in an enlargement and require a great deal of work in finishing.

The enlargement which sells best nowadays is not the vignetted head and shoulders with a cloud background which was sold ten or twelve years ago. Generally speaking, it may be said that the enlargement of today is an exact duplicate of the contact print in every respect but size.

Artura Carbon Black is the ideal enlarging medium because the Artura Carbon Black enlargement retains the contact quality.



CORRECT EXPOSURES FOR ENLARGEMENTS

When you are printing the regular order of contact prints from the negative, note the time necessary for making an Artura Iris print with the negative at a given distance from the light. This last is most important as each succeeding test must be made with the negative at the same distance from the light. For example, we will say this Iris time is six seconds. Now make an Artura Carbon Black or Bromide enlargement 8 x 10, being sure to make tests to get the exposure absolutely correct. We will say you are using Bromide and the correct exposure is fifteen seconds. Divide the fif-

teen by the six and you have $2\frac{1}{2}$, which is the factor to use in determining the correct exposure for an 8 x 10 enlargement from any negative.

Suppose, for example, the correct exposure for the Iris print is ten seconds; the exposure for the 8 x 10 Bromide will be $2\frac{1}{2}$ times ten or twenty-five seconds.

You may now take any negative of the same size as the one used in the first test and when you know the correct exposure for an Iris print and multiply it by $2\frac{1}{2}$ you will have the correct time for an 8 x 10 Bromide enlargement. It is easy to see what an advantage this method is to the photographer who is making a specialty of a certain sized enlargement, but it may also be used to determine the exposure for any other sized enlargement. It is not necessary to find the factor for each size, as the result may be obtained without making the different size test enlargements.

If a larger print is desired you have the exposure for the ten inch print; square the ten and you have 100. You want to make a 14 x 17 print; square the seventeen and you have 289; divide the 289 by 100 which gives 2.89, showing that the seventeen inch print has an area 2.89 times greater than the ten inch print. Hence if the proper time for the 8 x 10 enlargement is 25 seconds, the time for the

14 x 17 enlargement will be 2.89 times as long which is $72\frac{1}{4}$ seconds. The light decreases in intensity in proportion to the larger area which it covers, so the time for any size enlargements may be determined by having the correct exposure for a given size. In using this factor to determine the exposure it is understood that the lens of enlarging camera is stopped down to a given point and used at

the same stop for all exposures. The process of making enlargements of a given size may be made still more simple by having a set point for the enlarging easel and camera front where the full size of negative is to be enlarged, making the apparatus fixed focus. Of course where only a part of a negative is to be used, the regular method of focusing would have to be resorted to.



SOLVING AN OLD WINTER PROBLEM

Nearly every winter a number of professionals complain of lack of body in their negatives. They blame the plates or the developer, but the whole trouble, in nine cases out of ten, is that they have not dropped into the regular swing of their winter work.

As the days shorten, there is a general yellowing of the light. If the operator goes on giving summer exposures, after the light has lost so much of its actinic power, his negatives are certain to be under-exposed. The obvious remedy is to give longer exposures.

Even when the exposures are correct, there is too often under-development. If the professional does nothing to raise the temperature of his developing solutions in the winter, what can he expect but under-developed negatives? Every developing solution loses its power rapidly as its temperature falls, and a very cold developer can scarcely be called a developer at all. The temperature should never be below 65° —and the photographer who warms his solution up to this point and *keeps it there* will have no reason to complain of weak negatives.

Good, strong, plucky negatives, with plenty of gradation and body in them, can be secured in winter as well as in summer by increased exposures and by raising the temperature of the developing solution.

FOG AND HOW TO DEAL WITH IT

When a professional gets a fogged negative he can generally recognize the nature of the fog and put his finger on the cause. The young assistant, however, is apt to assume that all fog is caused by the action of light on the plate before or during development. He learns later, with surprise, that there are other kinds of fog which may occur even when the plate is handled in a perfectly safe light. He finds that, besides ordinary light fog, there are atmospheric fog, chemical fog, and the peculiar form of chemical fog known as dichroic fog.

Atmospheric fog, as its name implies, is actually present in the atmosphere, but it is often visible to the photographic plate when it is invisible to the eye. This happens whenever the moisture or dust in the air reflects ultra-violet and violet rays, instead of the visible rays belonging to other parts of the spectrum. And so it happens that a landscape, which the photographer thinks is free from all fog, may really be bathed in a thick invisible ultra-violet mist which is faithfully recorded on the plate. This experience is familiar to all who have done much photography in the West among the snow-capped mountains. Distant mountains

can often be plainly seen when it is impossible to photograph them on an ordinary plate without a light filter. The whole difficulty is very simply solved by the use of Panchromatic plates and a K2 or K3 filter.

Chemical fog is of an entirely different nature. It is due to uncontrolled chemical action during development. The whole process of development is based upon the principle that the developer will reduce to metallic silver those particles of silver salt upon which the light has fallen, whereas the particles upon which the light has not fallen will remain unaffected by the developer. If a very strong developer is used, however, there is a danger that it will reduce the particles of silver salt, whether the light has fallen on them or not, and the metallic silver which is thus deposited evenly all over the plate is known as chemical fog.

It is sometimes said that chemical fog is due as much to the instability of the silver salts in the emulsion as it is to the strength of the developer. The emulsion of a modern dry plate, however, is seldom at fault—but the developer which suits one emulsion is not always suited to another. The wise professional sticks to the formula recommended by the makers of the plates which he uses. Even when he does so, he may get chemical fog if the



FROM AN EASTMAN BROMIDE PRINT

By Geo. F. Wetlin
Newark, N. J.



developer is too warm, or if he forces development in any other way. Some plates will stand more heat than others without fogging; but it is a safe rule never to use a developer below 65° or above 70° F.

The established method of guarding against chemical fog is to add potassium bromide to the developing solution. It has been suggested that the bromide combines with the silver salts in the emulsion to form a double compound of silver, which does not respond so readily to the action of the developer, and that there is, accordingly, less risk of the developer reducing any particles of the silver salts upon which no light has fallen. This is only one theory out of many. Few subjects in photographic chemistry have aroused such fierce controversy as the part played by bromide in the developer.

The fact remains that potassium bromide, in small quantities, is an efficient protection against chemical fog, and, in larger quantities, is an efficient means of adding to the contrast and brilliancy of the negative.

The most curious fog of all is a peculiar form of chemical fog known popularly as green fog and scientifically as dichroic fog. It is found on negatives in the form of a stain, which is yellowish-green by reflected light and reddish pink by transmitted light. This characteristic explains

its scientific name—for dichroic fog means literally "the two-colored fog."

Its nature and its cause are not so easily explained. The general view is that dichroic fog is found only when some ingredient of the developer has the power of dissolving the silver salts in the emulsion. Silver bromide, silver chloride and silver iodide are all practically insoluble in water—but they are all easily soluble in ammonia or ordinary hypo, and are slightly soluble in sodium sulphite. And so this peculiar trouble was very common in the old days when nearly all plates were developed with pyro-ammonia, and it is still apt to occur when the developing solution contains hypo or an excess of sodium sulphite.

When the developer contains none of these solvents, the silver salts remain firmly embedded in the gelatine emulsion, but when any of these solvents are present, some particles of silver salt are dissolved out of the emulsion. If the salts react with the developing reagent while they are in this state of solution or semi-solution, the metallic silver is deposited on the surface of the plate in an extremely fine colloidal state. This deposit is what is known as dichroic fog. It is naturally heaviest in the shadows where there has been the least light action, because it is in these parts that the particles



FROM AN EASTMAN BROMIDE PRINT

By Geo. F. Weillin
Newark, N. J.



of un-reduced silver salt are the most numerous.

The chief characteristic of dichroic fog is that it is almost entirely on the surface, while chemical fog is a deposit in the body of the gelatine emulsion. Dichroic fog may often be removed by simple friction, or by mechanical reduction, as it is called. Generally speaking, it is difficult to get rid of it except by some form of surface reduction.

Troublesome as these ~~three~~ varieties of fog undoubtedly are, ordinary light fog causes still more trouble because it is so common. It is sometimes due to plate holders and dark rooms which are not light tight, but it is still more often due to the use of unsafe dark-room lamps.

Fortunately photographers are now recognizing more and more that they cannot rely on ordinary red, yellow or orange glass or paper to intercept the actinic rays. Many of the dark-room lamps which used to be sold gave barely enough light to make a few objects visible, and yet they transmitted such a large proportion of violet and blue rays that any plate of moderate speed was almost certain to be fogged. Nowadays these old lamps are being rapidly replaced by Wratten Safe-light Lamps. The Wratten Safe-lights are made of glasses coated with gelatine of that precise color which will give the maximum of illumination and yet

transmit only those rays of light to which plates are least sensitive; and the Wratten Lamps are so constructed that only reflected light is used. These two improvements being based upon scientific principles have practically eliminated light fog from professional dark rooms.



OUR ILLUSTRATIONS

The successful home portrait photographers of to-day are the men who anticipated the demand that could be created for such work, realized that it was more difficult than work under the studio skylight, listened to those who said it couldn't be done successfully and then went ahead and did it.

Home portraiture is not necessarily more difficult, but conditions encountered are more diversified. There are very few photographers who have not felt the limitations imposed upon them by a single skylight, have felt that its possibilities have been exhausted and its limitations realized.

Many of the studios built in recent years have been planned with the idea of having several different light sources, each of a different nature, to permit of securing a greater variety of lighting effects. As a result the photographer is given greater opportunity to develop his versatility.



FROM AN EASTMAN BROMIDE PRINT

By Geo. F. Wetlin
Newark, N. J.



His work can be different — he is not so likely to get into a rut.

The home portrait photographer is saved the trouble of producing a variety of light conditions. They exist and are a part of the home. To change them would produce artificial conditions and this is exactly what home portraiture is intended to overcome.

The conditions encountered in the home are a part of it and when properly used in a picture they increase its attractiveness by becoming a part of it as well. The best possible result is always desirable, but slight technical defects in home portrait results are, as a rule, outweighed by the natural homely interest that is of more real value to those most interested in the pictures.

Our illustrations are reproduced from the work of Mr. Geo. F. Wettlin, a successful home portrait photographer of Newark and Belmar, N. J. Mr. Wettlin has had a wide experience in studio work and has been connected with several of the large concerns that make enlargements and color work for the trade.

He became convinced, like many others, that much of the better class of portraits would eventually be made in the homes, so set to work at gaining experience in studios that were pioneers in home portrait work.

Mr. Wettlin's negatives are 5 x 7 and the exposures are made

with a focal plane shutter. The greater percentage of his prints are 8 x 10 or larger and Eastman Royal Bromide is used exclusively. The same kind and quality of prints in any size are made by enlarging.

About seventy-five per cent. of his portraits are of children and these child portraits are especially pleasing. Child portraiture is a difficult line of work, but there is a distinct advantage in being able to secure pictures of the youngsters in the home, where there is nothing new or strange. They are on familiar ground, and if the photographer is tactful enough to catch them at play and show them in happy moods the results almost invariably please.

Mr. Wettlin uses from one to two dozen plates to a sitting, uses daylight exclusively, and loses very few negatives because of "moves." He believes his portraits are his best advertisements, but uses newspaper and car card advertising as well. His work is entirely in the homes of his subjects, and as his business has steadily increased for the last three and one-half years, he has every reason to believe in the future of home portraiture.



Consistent use of your Thermometers will save trouble in developing both negatives and prints.



FROM AN EASTMAN BROMIDE PRINT

*By Geo. F. Wettlin
Newark, N. J.*



REAL CAUSES OF BLISTERS

Blisters on prints are seldom due to any fault in manufacture of papers, but they may be produced on any gelatine paper by improper manipulation. The best way to prevent blisters is to understand their causes—the remedies then become obvious.

Blisters may form on prints during developing, fixing, washing or toning, or partly during either operation. Their formation during development is a rare occurrence. The same is true of fixing, unless the print is transferred direct from a strongly alkaline developer to a strongly acid short stop bath or fixing solution, in which case small bubbles of gas are formed within the gelatine film because of the action of the acid on the alkaline carbonate. The formation of gas in the gelatine is over the entire surface of the print. If for any reason the gelatine film has become softened, a small gas balloon is formed under each weak spot where gas is being liberated, resulting in blisters or so called air bells. If the developer is not too alkaline or the acid short stop or fixing bath is not too acid, and prints are rinsed after developing, such blisters are not formed.

Air bells or blisters are liable to occur if the water used for washing contains an excess of dissolved air. Water under high

pressure is usually the cause of the trouble. The water contains a great amount of dissolved air and the gelatine emulsion is saturated with water. If the temperature of the water is slightly raised, this air is expelled with the result that it may raise the gelatine and form an air bell. If the gelatine has been properly hardened the air bells are not so likely to form. If this trouble is a persistent one, the remedy would be an open tank into which the water could be drawn from the tap. This relieves the pressure and allows the air to escape. Heating the water will expel the air more quickly.

All blisters, however, are not gas or air blisters. They are often filled with liquid, in which case they are caused by the phenomenon of osmosis. If a solution of some one of the forms of salt, hypo for example, is inclosed within the gelatine film of a print, the gelatine can only be penetrated by water or a solution of lower concentration than the hypo. If a print saturated with hypo is placed in water, it is natural for the hypo, of high concentration, to be forced out of the gelatine by the water. This force which causes the water to penetrate the gelatine and expel the hypo until the two solutions are of equal concentration is called osmotic pressure.

If by swelling, softening, or for any other reason, the gelatine

becomes less porous in one spot than another, the water will penetrate the gelatine faster than the hypo is expelled, with the result that a blister will form. This osmotic pressure is often great enough to break the gelatine emulsion. If the gelatine has been properly hardened and the print carefully handled, the gelatine should be uniformly porous and no such trouble experienced.

Most blisters are formed during washing after fixing, and their production is assisted by the presence of cracks, creases or folds in the paper, since wherever these occur the gelatine film is likely to be broken away from the paper support.

Likewise, any factor in manipulation which tends to soften the gelatine locally tends to produce blisters. A powerful spray of water will soften the gelatine in the spot where it strikes the print, and touching the print with warm fingers will soften the print at the point of contact.

Washing at high temperatures should be avoided as much as possible, and in all cases the temperature of the various solutions should be maintained as nearly the same as possible. A frequent cause of blisters is the transference of prints from a warm fixing bath to cold water, and vice versa. In cold weather keep a fixing bath where it will be as cold as the water used for washing.

Apart from the effect of tem-

perature, the use of alkaline wash water or an alkaline fixing bath, caused by carrying developer into the fixing bath with the prints, will tend to soften the gelatine and produce a condition favorable to blisters. It is important then to maintain the acidity of the fixing bath, or use a fresh bath at all times.

Blisters formed during after treatment are usually caused by toning, and may be due to insufficient hardening, the use of one of the acid bleaching baths, an excessively strong sulphiding bath or too hot a hypo-alum bath, together with one or all of the above causes. If a print is not thoroughly hardened and is placed in a very hot hypo-alum toning bath, it will soften before the alum can begin its hardening action.

If, during final washing, it is seen that blisters have formed, the paper underneath may be pricked and the water squeezed out, or the print may be immersed in equal parts of water and alcohol, followed by a bath of alcohol alone. It is better, however, to prevent toning blisters by drying prints before toning, or better still, by treating with a 3% solution of formalin after washing and before toning, with or without drying, if there is any reason to believe prints may not be sufficiently hardened to withstand toning.





KODAK HEIGHTS

The picture above shows Kodak Heights from the
than did the picture

In the foreground, the telegraph poles indicate the tracks of the Grand Trunk and Canadian Pacific Railways, which run side by side for several miles after leaving Toronto, on the way to Chicago and Winnipeg respectively.

The freight car on the extreme left is standing at the door of the Receiving Room, in close connection with which are the Stock and Shipping Departments. These occupy the first floor of that building, and the four upper floors house several of the Manufacturing Departments, such as the Box Department, wherein are made the containers—boxes and envelopes—in which you receive our products. The length of this building is two hundred and eighty feet by a width of eighty-five feet.

Connected to the building just mentioned, by a covered bridge, is the main manufacturing unit, having a length of four hundred and sixty feet by a width of eighty feet, five storeys high. The finished products are forwarded across the bridge into the Stock Room.

At the far end of this large unit is a wing for storage purposes and again a bridge connects, thus avoiding the shut-in appearance of some factories.



FROM THE WEST

and gives a better idea of the lay-out of the plant
in our last number.

Location of the Power Plant is indicated by the smoke stack, two hundred feet high, and it is in direct line with the manufacturing buildings. An interesting feature of the Power Department is the apparatus for refrigeration. Control of temperature is absolutely essential to uniform success in the production of Papers and Plates and Films, and that control is provided by a battery of ice machines, with a capacity of approximately 500 tons per day, but we do not use ice, of course, the refrigeration being afforded to all Departments by pipe lines carrying cold brine.

On the right of the picture are the General Offices of the Company, this building being sixty feet wide by two hundred long. As well as the Offices, it contains separate dining rooms for male and female employees, where they may get warm mid-day meals. The space between the office building and the manufacturing buildings is an open lawn.

Our facilities for supplying your demands are being tested as was never expected, but on the whole, we believe we are meeting the requirements adequately, despite the most disconcerting conditions. Our Kodak Heights plant has had a large influence in enabling us to meet the strain as well as it is being met.

ITEMS OF INTEREST

The commercial photographer often has occasion to deliver prints with gummed backs. The gum must be dry, but it must have adhesive qualities that will permit of its being mounted on any suitable support simply by moistening it as one does a postage stamp.

The following formulae have been found very satisfactory and should be added to the information in your scrap book of formulae if you have such a means of keeping information where it may always be found when you need it:

Water	5 parts
Fish Glue or Liquid	
Glue	10 parts
Glucose (liquid) . .	5 parts
Alcohol (denatured) .	5 parts

Heat the water and stir in the glue, glucose and alcohol. Add a few drops of carbolic acid to prevent fermentation and thin down with water to the required consistency.

The following modified Dextrin formula may also be used with good results:

Dextrin	10 parts
Water	10 parts
Acetic Acid (glacial) .	5 parts
Glucose (liquid) . .	5 parts
Alcohol (denatured) .	5 parts

Warm the dextrin and water, add the acetic acid and heat. Stir in the glucose and finally add the alcohol and a few drops of carbolic acid. Thin with water as required. The function of the

glucose is to prevent the adhesive coating from cracking. If the coating is too tacky when dry, use less glucose.

The solution is applied with a brush and the prints hung up in a dry atmosphere. They dry very quickly, unless too much glucose has been used, and should remain dry so long as they are not subject to dampness.

Wheel trimmers can be sharpened by making a groove in a piece of soft wood, filling this with fine emery powder, and then running the wheel trimmer backwards and forwards in the emery-lined groove. The groove is made by laying a thin straight-edge on the wood and running the wheel along until the cut is wide enough to take the emery powder.

It is usual, in taking a sitter with protruding ears, to avoid the full-face portrait. Every experienced operator knows, however, that with some sitters the full-face is the only possible view, whatever the ears may be like. With sitters of this kind the white background is a drawback. The silhouetted effect emphasizes the outline and draws attention to the slight irregularity. It is much better to use a toned background and, in arranging the light, to keep the ear in a low key.



FROM AN EASTMAN BROMIDE PRINT

*By Geo. F. Wetlin
Newark, N. J.*



Many professionals don't seem to realize that, when they arrange specimens of their work in their windows or showcases, they are telling the public not only what kind of photographs they take, but how they conduct their businesses, whether they have artistic tastes, and whether they are likely to give careful attention to every detail of an order. As a rule, the public get their first impressions of a professional from what he puts before them—and first impressions have a habit of sticking in the mind and creating permanent prejudices.

When an operator starts taking very large heads direct, he is liable to fall into the error of using a lens of too short a focus. He finds that as fast as he gets one feature in focus another goes out of focus, and no compromise is possible except to produce a fuzzy negative which is sharp nowhere. He learns after a few failures, however, that a long-focus lens is absolutely necessary for this class of work if he wants definition and absence of distortion. Another frequent error in making large heads is under-exposure. This causes the harshness which is so fatal to good results. It makes slight blemishes or freckles too assertive, and prevents the shadows from being luminous. To secure softness and gradation in the flesh, the

exposure must be full, and development must not be prolonged or forced. It is a wise precaution to keep the developer weak in pyro.

The rapid drying of negatives has always been a perplexing problem for those who have to rush their work off at a few hours notice. Press photographers, as a rule, avoid the difficulty by making their urgent prints from wet negatives. This method, of course, is out of the question where a considerable number of prints are wanted. Hot air has often been advocated as the quickest means of drying a negative, but the great drawback to applying heat to a wet emulsion is so well known that the professional is seldom anxious to give the method a trial. It is quite true that a still hot atmosphere will very soon melt the film, but it is just as true that an even hotter atmosphere when forced against it by means of an electric blower dries the negative very quickly without any deteriorating effects.

There are operators who never and others who always use a reflector. The man who knows what he wants gets it by any means possible. He uses a reflector when it serves his purpose and discards it when he can secure the effects he wishes without it.



FROM AN EASTMAN BROMIDE PRINT

By Geo. F. Wetllin
Newark, N. J.



CHRISTMAS SUGGESTIONS

The photographer who has secured his supply of fuel for the winter and has sufficient help on which he can depend with reasonable certainty will not be troubled with shortages which are affecting many other lines of business, unless it should be a slight inconvenience in transportation.

Judgment should be used in anticipating one's needs as the transportation facilities of the country are being taxed to their capacity and any conservation of these facilities will help the government to handle one of its big problems.

If you have drifted into the habit of ordering supplies three times a week, order but once a week. If you have had freight shipments four times a month, order more carefully and make one or two answer. You will be able to get all the supplies you need and you will be helping to facilitate the moving of food and war supplies.

One of the important things during any season is the prompt delivery of proofs. Many photographers have found it very profitable to put a special retoucher on proof work. It is easier to secure orders and they are larger and better if the more likely negatives are cleaned up before the proofs are made. There is practically no loss for less re-

touching will be required to put the selected negatives in condition for printing.

Supply your finishing rooms with every convenience that will save time and labor, and by doing so allow you to handle a greater volume of work and deliver it more promptly. The initial expense will be offset by your profits on a greater volume of business.

Use fresh developers and fixing baths and don't try to economize on the chemicals from which they are made. You can't afford to turn out poor work at any time but in a busy season you have no time to look for trouble and it is little short of disastrous if you have to make over a batch of prints.



TOZOL

The Complete Developer

Requires the addition of no developing agent. It's right just as it is, and is prepared exactly as it was before the war.

Your dealer can supply you.



YOUR portrait for
your boy—in the
Christmas package
from home.

*Make the
appointment
to-day*



THE PYRO STUDIO

Line cut No. 245. Price, 50 cents.

THE ONLY CONDITION

We make but one condition in our offer of cuts for the use of photographers.

It is obvious that two photographers in the same town would not care to use the same cut, and we are therefore obliged to limit this offer to one photographer in a town. It will be a case of first come first

served. The first order from a city will be promptly filled. Succeeding orders (if any) will necessarily be turned down and the remittance, of course, will be returned. It is also obvious that we cannot, on account of the cost of the drawings, furnish any large variety of cuts at the nominal prices quoted, and therefore can offer no substitute cut. Get your order in *first*. C. K. CO., LTD.

The New Developer:

KODELON

(Paramidophenol-Hydrochloride)

An economical and highly successful developing agent, used in connection with Hydrochinon, for all developing-out papers.

It bears the Kodak Tested Chemical Seal.

THE PRICE

1 oz. bottle	. . . . .	\$ .90
$\frac{1}{4}$ lb. “	. . . . .	3.25
$\frac{1}{2}$ lb. “	. . . . .	6.25
1 lb. “	. . . . .	12.00

Canadian Kodak Co., Limited,

Toronto, Canada

All Dealers'.

Two methods of dark room illumination that you can be sure are safe.

Kodak Safelight Lamp



By employing reflected light which shines through a Wratten Safelight, the greatest volume of illumination that can be used with safety is secured. You have a safe light *and yet there's more of it.* Interior of lamp is enameled a brilliant white to intensify light reflection.

Kodak Safelight Lamp supplied with safelight and four feet of electric light cord with plug . . \$4.00



Brownie Safelight Lamp

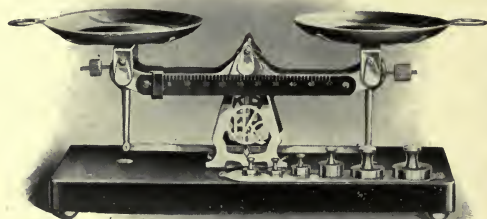
This lamp is admirably adapted to plate or film changing. Screwed into the ordinary electric light socket, in the wall or on a cord, the Brownie Safelight Lamp instantly provides a means of safe illumination. Both safelights, the circular one at the end and the rectangular one at the side, are removable.

Brownie Safelight Lamp \$1.25

Canadian Kodak Co., Limited,

All Dealers'.

Toronto, Canada.



EASTMAN SCALE

A practical and accurate avoirdupois scale specially designed for the convenience of the professional photographer.

The beam with the sliding weight is the feature which eliminates the use of small loose weights and simplifies the working of this scale. The large weights are carefully tested and marked in grains as well as ounces or fractions of ounces. The large weights which most nearly make up the amount of chemicals wanted are placed in the right hand pan and the weight on the beam is slid to the right to make up the exact amount. The scale is made of the best materials—all bearings are of hardened steel, the beam is black with white markings, all other parts being nickeled.

THE PRICE

Eastman Scale \$4.50

Canadian Kodak Co., Limited,

Toronto, Canada.

All Dealers'.

WANTED

DISCARDED NEGATIVES

We purchase discarded negatives of standard sizes from $4\frac{3}{4} \times 6\frac{1}{2}$ to 20×24 , providing same are in good condition and are carefully packed in accordance with our instructions.

We will pay all the freight on shipments of 100 lbs. or more, except from localities where the freight rate exceeds \$1.00 per 100 lbs., in which case the shipper will be required to pay the excess.

Before making any shipment please secure these instructions, prices and further particulars, which will be furnished on application.

Canadian Kodak Co., Limited,
Toronto, Canada.

Department S.

The difference between poor results and the best results is often the difference between poor chemicals and the best chemicals.

*Look for this seal and be
certain of quality.*



Canadian Kodak Co., Limited,
Toronto, Canada.

All Dealers'.

The obvious way to make business is to create a demand for what you have to sell—photographs.



Eastman Portrait Albums

create a demand by supplying a practical, substantial and convenient means of caring for portraits as they should be cared for. They are adaptable to 87% of the sizes of portraits now made by photographers.

The more albums you sell, the more photographs you will sell to fill them.

EASTMAN KODAK COMPANY

ROCHESTER, N. Y.

All Dealers'.

Get the soldier groups.



Eastman View Camera No. 2

7 x 11

Narrower than 8x10, but longer, the proportions of the 7x11 are especially suited to either vertical or horizontal subjects. It is a size that fits the group picture, landscape or architectural subject equally well.

A picture of these proportions is suitable for a greater number of subjects than any of the present standard sizes, none of which parallel it. You must see a 7x11 print or mark out a 7x11 rectangle to get an idea of how suitable it is for groups, landscapes and architectural subjects.

The Eastman View Camera No. 2 is the improved model of Empire State and Century View, and is fitted with every practical convenience that our manufacturing experience has been able to suggest.

The new 7 x 11 size has a swing of unusual latitude and an especially large front board ($13\frac{1}{2} \times 6\frac{1}{4}$ inches) with sliding arrangement permitting the lens to be centered on either half of the plate when making two exposures on the plate.

THE PRICE

Eastman View Camera No. 2, 7 x 11, with case and one
Plate Holder \$50.00

CANADIAN KODAK CO., LIMITED,

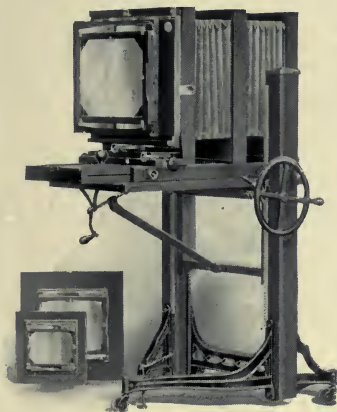
All Dealers'.

TORONTO, CANADA.

*The rapidity, smoothness, and precision afforded
in the operation of*

Century Studio Apparatus

are valuable requisites in every progressive studio.



Portrait film or Plates may be used in the Double View Holders which fit the 11 x 14, 8 x 10, or 5 x 7 reversible, spring actuated Ground Glass Adapter Backs, interchangeably attached to the sliding carriage.

The operator can make full sized negatives, or by the use of diaphragms and lateral movement of the sliding carriage, two 7 x 11 negatives on the same plate with the 11 x 14 back, or two 5 x 8 negatives with the 8 x 10 back.

The platform of the Semi-Centennial Stand, with camera in position, can be quickly and easily elevated to a height of 49 inches, or lowered to within 14 inches of the floor, and locked in any desirable position.

Send for Professional Catalog

CENTURY CAMERA DEPARTMENT

EASTMAN KODAK COMPANY

ROCHESTER, N. Y.

FEATURE THEM
FOR YOUR

**Holiday
Trade**

**Xmas
Remembrance
Folders**



The Xmas Remembrance Folder

as a special Holiday offer will not interfere with your regular grades; in fact they will bring many people, especially the young folks, to your studio who otherwise at the time might not be interested in portraits.

Both Cover and Insert are made of excellent quality stock in colors Buff and White. In upper left-hand corner a Poinsettia Design is richly embossed in green and red relief and in the lower right corner the words, "With Kind Remembrance and Best Wishes for A Merry Christmas," embossed in green relief.

For $\frac{1}{2}$ Cabinet Square Prints only. Size Outside, $4\frac{1}{4} \times 7$ inches.

Price, \$5.50 per 100 Sample Mailed Free.

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Canadian Card Co., Toronto, Canada.

PHOTOGRAPHIC MOUNTS
MADE IN CANADA

Sell a good enlargement
from every soldier negative.

ARTURA CARBON BLACK

enlargements have the contact
print quality that makes the
selling easy.



CANADIAN KODAK CO.,
LIMITED,
TORONTO, CANADA.

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*By Moffett Studio
Chicago, Ill.*



STUDIO LIGHT

— INCORPORATING —

THE ARISTO EAGLE .. THE ARTURA BULLETIN

ESTABLISHED 1901

ESTABLISHED 1906

VOL. 9

DECEMBER 1917

No. 10

THE BIG FILM ADVANTAGE

The progressive photographer must experiment, but his work is only that of proving up the claims of those who have done the real experimental work. He progresses because he does the minimum of experimenting, but he would get nowhere without at least trying out those things which seem to have advantages that may be of value to him in his work.

The users of Portrait Film are, for the most part, progressive photographers who have been quick to see the real value of the qualities claimed for film but sufficiently conservative to feel their way. That they have stuck to the use of film is conclusive proof that they have found it has brought them a step nearer the attainment of their ideals.

Month by month the sale of Eastman Portrait Film is increasing, in many instances is doub-

ling, and while the increased sales are gratifying they mean much more than advertising, demonstrating and selling. Every blow of the hammer that drives a nail also tests the material of which the nail is made. If it's a poor nail it will crumple up and have to be withdrawn. If it's a good nail every blow of the hammer drives it deeper and imbeds it more firmly.

Portrait Film has proved itself. Four years of faithful performance in the hands of a growing list of progressive photographers has established it as a staple.

No one need say "Let the other fellow do the experimenting." That stage has long since been passed. Film sales are the best proof of performance, and when these sales continue to climb there is a very good reason.

Film performance should be of interest to every user of glass plates, for if better results are possible, the man who wants them should know what part his

material plays in the quality of the result he secures.

Halation is the fault which has limited perfect reproduction. Halation is caused largely by reflections from the glass surface, very slightly by refraction within the emulsion itself. For the most part, therefore, it is the fault of the glass support and not of the emulsion. The reflection of light from the glass support can be overcome only in a measure and only at an additional expense in plate manufacturing.

The logical remedy for halation is the use of a support for the emulsion which, as nearly as possible, overcomes the defects of glass. As the extent of halation depends largely upon the thickness of the support, and this must be transparent, film is the logical and practical remedy.

Many photographers deny the existence of halation in their portrait negatives. This is because they have never seen a comparison between film and plate negatives. The film user enthuses over "that indescribable quality" he finds in film. He has been unable to see the halation in plates, but he *can* see the lack of it in the film result.

Masses of highlights without form are seldom natural and never to be desired, and form can not be produced without shade as well as light. Halation destroys the form of highlights, the texture of flesh, of delicate draper-

ies—in fact, destroys any impression that is made up of a number of fine points of light with intervening shadows. The finer the detail the more surely will it be destroyed, for the spread of every point of light is determined by the thickness of the glass plate, and the finer the points of light the more surely will halation overlap and destroy the intervening shadows.

True reproduction can not be secured where there is halation, but the more its effects are reduced the nearer will the result come to perfection. Film quality is superior because the most perfect emulsion that can be produced is coated upon a support so thin that it is practically free from halation.

Film negatives have the roundness, the brilliant crispness that one sees on the ground glass but so seldom gets in the finished print. Aside from these qualities Portrait Film has exceptional speed, fineness of grain and wide latitude. Its qualities are ideal for either studio or home portraiture, and the convenience of lightness, compactness, flexibility and ease of manipulation are very soon appreciated by the worker who is progressive and open to conviction.

Photographers who have given Eastman Portrait Film a thorough trial will tell you that the big advantages of film are "better results"—and convenience.

PRACTICAL SUGGESTIONS

When your printer is busy and finds it necessary to stop his work to cut an odd sized mask, time is wasted if you have not supplied him with Mask Charts to make the work easy. The dimensions are accurately printed on these Charts, so that it is only necessary to follow the lines with a sharp knife to make any Mask within the dimensions of the Chart used. The 5 x 7 Eastman Mask Charts are 10 cents, the 8 x 10, 15 cents and the 11 x 14, 30 cents per dozen.

Pyro stains may readily be removed from the fingers and nails even though they are of long standing.

Dissolve one-third of an ounce of potassium permanganate in eight ounces of water. The fingers and nails should be rubbed well with this solution which will stain them a deep rich brown. Then rub them thoroughly with a saturated solution of potassium metabisulphite and both the Pyro and permanganate stains will be removed. The hands should be well rinsed afterwards.

To remove stains under the nails the two solutions should be applied with a brush. We know of no ill effects resulting from the proper use of the above remedy.



DISPLAYS THAT PAY

Window displays are probably more important during December than any other month of the twelve. The people who always come to you in December may come to you again, but there are a lot of people who seldom or never visit the photographer, but might, at this time, if the right sort of a display caught their eye and set them thinking of portraits of themselves.

Your display case is a fixture and if the pictures in it are not changed frequently they also become fixtures and fail to give the impression that things in your place are actually moving and new people are constantly being photographed.

More people shop in December than at any other time of year, more people are asking themselves the question "What shall I give?" and you have an opportunity to suggest an answer to that question the same as every other merchant in your town.

Pictures alone won't always do it, and the same pictures surely won't appeal to everyone alike. Then you will find that the same people will pass your display more often in December than in other months and they will look a second time if there is a new display to look at.

Window shopping is regularly practiced by those who have gifts

to make and are looking for suggestions. And there are a number of excellent arguments you can use this year. Neat cards, well lettered, should remind the shopper that the soldier boys in the camps or "somewhere in France" will want pictures from home—that from the standpoint of economy, photographs convey the thought of friendship without imposing an obligation. Your portrait adds the personal touch to Christmas greetings and enables you to maintain your Christmas customs without extravagance.

There has been so much thought of the welfare of our soldiers and those of our allies—so much self denial by those who are working for their comfort, that the line, "Keep on with your knitting—let us make your Christmas gifts," suggested by Mr. Garrett, will appeal to every Red Cross worker. Twelve portraits make twelve of the most appropriate gifts and relieve the giver of a lot of shopping worries.

There is an opportunity such as you have never had before to display and sell leather pocket cases to hold the photographs that are being sent to the soldier boys. And there should also be a demand for these same cases for the fathers or brothers of the soldiers.

If father has a boy in the Army or Navy a bill-fold or pho-

tograph case will be prized by him. Father is proud of his boy, and though there may not seem to be so much sentiment on the surface, it is in that old heart of his, and the mere mention of his boy will bring it to the surface with a bound.

Change your displays more often in December than at any other time of year—use neat cards with good arguments for photographs as gifts—and don't be afraid to price some of the styles of pictures you display. You can always add—other styles, sizes and prices are shown in the studio, and you might advise those who examine your display that they will be welcomed as visitors in your studio.

The display case is seldom used to the very best advantage, but it is just as important a factor in your advertising as the merchants' windows and should be given the same care and attention.

Don't forget that it is equally important at New Year's and Easter. A New Year's display should be ready and in place by the time you have to turn away orders for Christmas delivery. Business doesn't necessarily stop at Christmas unless you allow it to, and this of all seasons should be a busy one.

The display should work at night as well as during the day, for there are a lot of busy people



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By Moffett Studio
Chicago, Ill.



who have no other time to examine the Christmas window displays. The cost of lighting will be small compared to the actual advertising value secured.



A GOOD SLOGAN

We received an excellent slogan for Christmas advertising, too late for publication in the November *STUDIO LIGHT*. The suggestion from E. G. Garrett, Oshkosh, Wis., is

"Keep on with your knitting—
let us make your Christmas Gifts."

The argument is good and especially timely since thousands upon thousands of women of our country are loyally devoting their time to the knitting of garments so necessary to the comfort of our allies and our own soldier boys in training camps and in the trenches of France.

The women who are most adept at such work are the ones who, in time of peace, ply their needles in making comfy little gifts for their friends. Why should they stop the more important work for the Red Cross to make their own Christmas Gifts, when they can have a sitting for photographs in a few minutes and the photographer can furnish them with as many gifts as they like?

Many women are so devoted

to the work that they knit at home, on the street, in the theatre or wherever they may be. To these, the slogan will have a strong appeal, but it will also interest others and suggest the ease with which the gift problem can be solved with photographs.

Mr. Garrett's suggestion would also fit in with the sale of Portrait Gift Certificates, even if it is a bit late for the actual making of sittings and delivery of work in time for Christmas.



Dry Mounting Advantages

*Dry mounting does not
cockle the thinnest mount,
holds the print perfectly
flat and permits you to
deliver prints immediately
after they are mounted.*

*Prints may be mounted
solid, tacked at the corners
or at one edge.*

*Have your dealer show
you the*

Kodak
Dry Mounting Press



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OUR ILLUSTRATIONS

An idea is just as big as a man makes it. Home portraiture is as old as photography, but until recently few photographers have used it as more than a means of photographing people who for some reason would not come to the studio.

Possibly it was someone without a studio who conceived the idea of making a business of home portraiture and saving the rent of a place of business. At any rate, photographers here and there who were not tied down by studio traditions made home portraiture a part of their work and encouraged such sittings. It has worked to the advantage of the studio photographer and has proved to his satisfaction that it does reach people who would not come to the studio to be photographed.

The Moffett Studio of Chicago was one of the first of many studios to develop home portraiture on a large scale. Chicago people from the start took kindly to the idea and were willing to be shown that good portraits could be made in their homes as satisfactorily as in a studio. It was but a short time until there was a big demand for Moffett home portraits.

The field seemed to be unlimited. There was a limit, however, to the men who were capable of doing such work. Most of them had to be trained before

they were able to bring their work up to the Moffett standards. It's one thing to make a home portrait business stand on its own feet under its own name, but it's quite another thing for a studio with a reputation for a high standard of work to maintain that standard for work done outside the studio.

The Moffett Studio has demonstrated that successful home portraiture depends upon the ability of the photographer to select the most favorable conditions of light, background and accessories found in the home, to know perfectly the possibilities of the material with which he is working and to exhaust his picture possibilities before he counts his work finished.

The last may necessitate the making of a number of negatives, but it almost always results in large orders and obviates making sittings over, which are much more expensive than in studio work.

No expense is spared. Operators are selected for their special ability and are given a thorough trial before they are allowed to make sittings in the home. At the beginning, the greatest drawback to the work was the necessity of using glass plates. When it was learned that Portrait Film was soon to be placed on the market, the big film advantages of convenience were at once seen and appreciated. Film was or-



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dered, tried out, proved satisfactory, and was adopted for home portraiture. Convenience seemed the big film advantage, but when it had been thoroughly tried out its quality was so apparent that it was also adopted for studio work.

Aside from home portraiture the business of the Moffett Studio is large and of a very high class. Its success is due to its very able management, and the high standards this management insists on upholding, in its service, salesmanship and the quality of the work produced.

Our illustrations are from the regular run of work produced by this studio and show the adaptability of film for all classes of portrait work.



The amount of light used in the studio has a wonderful effect on the eyes of a sitter. A person with small eyes should never be placed in a brilliant light, for the simple reason that the eyes will contract and appear to be much smaller than they actually are. Full justice cannot be done to the eyes if the sitter is all the time straining to protect them from the glare. That is why the eyes are seldom a pleasing feature in photographs taken out-of-doors.



STAINS ON NEGATIVES AND PRINTS

THEIR CAUSE AND THEIR CURE

Stains may be due to several causes, and vary accordingly in their nature and color. Thus, we may have red or blue ink stains, iron stains, pyro and iron stains, silver and dichroic fog stains, oxidation stains and others less common. Since yellow stains are most frequently met with, we will deal with them first.

The two commonest yellow stains in photography are oxidation and silver stains. Oxidation stains are caused by oxidation of the developer by oxygen from the air. Thus we may have Elon, Pyro, Hydrochinon and other developer stains, which may be either local or general.

Local stains are the result of careless handling of the negative or print, being caused by incomplete immersion in the developing- or fixing-solutions. A slight curl of a film or print, a negative not entirely covered, or too many prints in one tray, will leave some part of the surface exposed to the air, oxidation will take place and a yellow patch will appear the size of the portion of negative or print exposed to the air.

The necessity of completely submerging the plates, films or prints in the solutions is obvious, and after being placed in the



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fixing-bath they should be moved about. A precaution that is a great trouble-saver is the use of an acid stop-bath between developing and fixing. The effect of this is to neutralize or destroy the effect of the alkali in the developer that is carried over in the negative, thus reducing the tendency of the developer to oxidize.

There is also a danger that if the acid fixing-bath becomes neutralized through the carrying over of alkali from the developer, stains may be produced. It is therefore a wise precaution to add further amounts of hardener to the fixing-bath at intervals, to make sure that it remains acid.

Local yellow stains produced in this way act just as if pieces of yellow filter were placed over the negative, and the print produced will be weaker in those places where the stain is present, hence the necessity of avoiding or removing it.

General oxidation stain extends over the entire surface of the negative or print, and is caused by the use of an old or discolored developer, or by a developer not containing a sufficient amount of sulphite. Pyro will give this stain, especially if the solution has been allowed to stand for any considerable time before use. In cases where the general stain is uniform it will have no other effect than to prolong the printing-time of the negative.

In the case of a pyro-developed negative, in addition to the slight general yellow stain above, there is usually a yellow stain image present along with the silver image, the presence of which may be revealed by removing the silver image in a bath of Farmer's reducer. This image is an oxidation product of the developer produced in those places where the metallic silver is formed during development. This oxidation stain has the effect of increasing the contrast of the negative, and explains the fact that a thin-looking pyro-developed negative will often give a contrasty print.

The other common stain that is likely to occur is silver stain. It is difficult to distinguish this from oxidation stain by ordinary observation. Like the latter, it can be either local or general, and it arises from one or several of the following causes:

(a) The first cause is the use of an old and exhausted fixing-bath, containing an undue amount of silver in solution. If the negative or print is not sufficiently washed, some of the silver salt remains. This is colorless, but is changed to yellow silver sulphide after some time. This first cause is easily prevented.

(b) Incomplete Fixing. This can occur even with a new bath if the print or negative is taken from the bath too soon. While the plate is fixing, the silver

halide in the emulsion changes first to colorless silver thiosulphate, which is comparatively insoluble. At this point the milkiness of the plate or film disappears. By leaving the plate in the bath this soluble and colorless compound is changed to a more soluble double thiosulphate of silver, which can be easily washed out. When the film is removed from the fixing-bath immediately after the milkiness has disappeared—the first stage of fixing—no amount of washing, later, will remove the insoluble silver salt, and this will in time be changed to yellow silver sulphide stain. The only safe rule is to leave all prints and negatives in the fixing-bath for double the time required to reach the end of the first stage, which is marked by the disappearance of the milkiness.

(c) If prints or negatives have not been completely covered while in the fixing-bath, they may appear completely fixed; but in spots they may have fixed only as far as the first stage, with the result that on exposure to the air yellow stains will appear.

Local silver stains may be caused by leaving a negative in contact with damp gelatine proof paper. This paper contains a soluble silver salt which is more or less absorbed by the negative and produces the stain.

When using printing-out paper care should be taken to see that

the paper and the negative are perfectly dry. When there is a possibility of the negative and paper being in contact over night, owing to failing light, a sheet of Kodaloid should be placed between them before exposing.

As previously stated, it is difficult to detect slight silver stain in the presence of oxidation stain by observation. While a stain may be either pure silver stain or pure oxidation stain, it is more likely to be a combination of the two.

From the above it is evident, therefore, that yellow stain may consist of one or more of the following compounds:

Metallic silver, silver sulphide, silver thiosulphate, silver photohalide, together with an oxidation product of the developer.

REMOVAL OF YELLOW STAIN

There are two methods of removing the stain—(a) chemically, (b) photographically.

Oxidation stain may be removed by bleaching the silver image to silver chloride, and re-developing, this process, incidentally, removing the stain. In the case of both negatives and prints, it is a wise precaution first to harden them in a 5 per cent. solution of formalin, and wash, otherwise the gelatine is apt to soften and frill during the treatment. The permanganate bleach is made up of the following two stock-solutions:

A

Avoirdupois

Potass. permanganate . . . 64 grains
 Water 32 ounces

B

Sodium chloride
 (table salt) 5½ ounces
 Sulphuric acid
 (strong) . . . 1 ounce 160 grains
 Water 32 ounces

For use, take two parts of water and one part of B, and to this add one part of A.

A point that must be observed in the mixing of the solutions is that the stock-solution A *must be added* to the diluted B solution, that is, one part of A must be added to the combined two parts of water and one part of B. If the stock-solutions are mixed before B is diluted, chlorine gas will be given off. When the solutions are mixed as directed, chlorine gas is not liberated, but remains in solution and converts the silver image into silver chloride, which is wanted.

The solutions A and B keep well if kept separately, but not when mixed, and for this reason the bleaching-bath should be prepared as required.

When preparing the solution A, be sure that no particles of undissolved potassium permanganate remain, or they will give trouble in the way of spots and blemishes in the negative.

The bleaching should be complete in about three or four minutes, after which the negative

should be rinsed and put into a weak solution of sodium bisulphite, rinsed and developed in a *strong light* (daylight, if possible) with an ordinary developer, say Nepera solution one part, water four parts.

In the case of a pyro-developed negative, the image of which consists partly of a silver and partly of a pyro stain image, the above process removes the stain image entirely, leaving a pure silver image, the process therefore being equivalent to reduction. By using a weak pyro re-developer, much of the original stain image may be re-formed, though, incidentally, considerable general yellow stain is produced at the same time.

SILVER STAINS

If silver stain is treated as above, it will not be removed, but will be changed to metallic silver, and a black deposit will take the place of the yellow stain.

When a negative or print is stained, and it is decided to attempt its removal, it is a good plan to find out by a preliminary test just what particular variety of stain you have to deal with. This is done by cutting a narrow strip from the edge of the stained paper or film, and bleaching and redeveloping as described above. If the stain is removed entirely, it is pure oxidation stain, but if is replaced by a black deposit, it



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consists more or less of pure silver.

Whenever silver stain is present, it is a much safer and better plan to remove it photographically.

The following method of removing stains by means of color-sensitive plates and light filters was published in *STUDIO LIGHT*, February, 1917.

"This special use we have in mind for a panchromatic plate and contrast-filter is for reproducing valuable negatives that have become so badly stained that they are useless for printing.

"Negatives become stained in various ways, and sometimes these stains cannot be removed by a chemical treatment without injuring the silver image. It is useless to try to print from them, but it is a very simple matter to reproduce them, provided the chemical that made the stain has not removed a portion of the silver image, and this is not often the case.

"A positive made by contact through the strong Wratten 'G' filter on a panchromatic plate will show no trace of the yellow stain. It is then a simple matter to make a negative on a Seed 23 plate from the positive, by contact, if the positive is of the desired size.

"Filter-film is not expensive, but care should be used in handling it. It is stained gelatine

stripped from the glass-support on which it was coated, and without a support it must be kept absolutely dry to retain its form.

"On the other hand, an enlarged, reduced or full-sized positive may be made in the enlarging or reducing camera, in which case a piece of filter, only slightly larger than the diameter of the lens, will be required."

Apart from yellow stains, we may have brown iron-rust stains, or bluish stains caused by the action of pyro on such iron stains, though these are usually removed during the bleaching- and developing-process above, as are likewise stains due to most aniline dyes, and red and black writing-inks. In the case of some samples of red ink, a slight trace of stain will remain after such treatment, in which case its effect may be removed photographically.

Although the previous article in *STUDIO LIGHT* makes particular reference to the "G" filter for removing yellow stain, any colored stain may be dealt with in a similar manner by a suitable choice of filters, so that on viewing the stained negative or print through the filter, the stain becomes invisible.

Another form of stain, rarely met with, is dichroic fog, which appears yellowish green on looking at the surface of the film, but pink when looking through the negative. This stain consists of particles of colloidal silver, and is

caused by underexposure and forced development of rapid plates or film with a developer containing hypo, ammonia or an excess of alkali or sulphite, that is, a solvent of silver bromide, or the use of a weak fixing-bath or one containing an excess of developer.

Anything which tends to increase the solubility of the silver bromide in the developer, such as an increase in temperature, tends to increase the amount of fog likewise. The stain may be removed by an application of a weak solution of Farmer's reducer, or a dilute solution of potassium permanganate with the addition of a few drops of sulphuric acid. This will be effective only if the stain is more readily attacked than the silver image, so that if the stain is of long standing, the slight reduction of the negative is apt to take place.

While oxidation stain is being removed by the above bleaching- and redeveloping-process, any drying-marks left on the film or plate, caused by too rapid drying, will disappear also.

Another advantage in the use of the bleaching- and redeveloping-method is that it affords an opportunity for intensification and reduction. If the negative from which we wish to remove stain is weak and thin, we can, in the redeveloping-stage of the stain-removing process, redevelop with

a solution of sodium sulphide. If, on the other hand, the negative is too dense, by cutting down the time of redevelopment and subsequently fixing we can effect any degree of reduction. In this way we can make two improvements to our negative by the one operation, and if the negative happened to have any of the other stains mentioned above, we accomplish several improvements with one effort. The above methods of stain-removal may be applied to the removal of stains from sulphided prints also.



TOZOL

The Complete Developer

Requires the addition of no developing agent. It's right just as it is, and is prepared exactly as it was before the war.

Your dealer can supply you.



PUT SYSTEM IN YOUR BUSINESS

The more business you do—the more money you make—the more you need system in your studio. System should be looked upon as an accelerator of business—a pacemaker that keeps you at your best pace and gets the most out of you with the least waste of energy.

The most prosperous business without system is continually cheating itself of one of the greatest helps to any business, and that is, honest criticism. If there is some little thing wrong with your business a system sheds light on it, not gloom. If there is a loose cog in your business machine that slips, system will find it and enable you to tighten it up.

Just because you are prosperous and happy, don't imagine system is going to take the joy out of life. It's going to make you more happy and prosperous and energetic and no one need fear it except the slacker or waster who does your business harm.

If you wish to quote a price on a big job of work and allow yourself a certain per cent. of profit you can only do it by knowing your expense and cost of production. If you lose a contract because your price is too high it is much better than find-

ing out you have lost money when the work is finished.

The successful business man is a success because he knows definitely every cost and sells at a certain profit. The successful photographer often owes his success to his ability as a workman, his personality and a good volume of business at a good, fair profit. A good business man might capitalize the photographer's ability and personality, pay him a salary equal to the money he would make as his own boss, and still make good interest on his investment, simply by the economy made possible by the use of system.

System is the ground-glass of business. It enables you to focus every little detail of your business with accurate sharpness, but it doesn't change anything. It merely enables you to see what otherwise you could only guess.

You can imagine how successful you would be if you made negatives by guess without ever looking on your ground-glass—yet that is the way many a photographer sets the prices for which his work is to sell.

The photographer guesses pretty well and usually manages to make a good profit, but he would often make a better one, and at least a more uniform one, by the aid of a system of accounting and cost finding.

There are many cases of successful photographers who have



ARTURA PRINT, FROM AN EASTMAN PORTRAIT FILM NEGATIVE

*By Moffett Studio
Chicago, Ill.*



found that all their profits have been made on certain lines of work, while other work has been done at cost or even at a loss. System revealed this fact and enabled greater energy to be expended on the work which was bearing the expense, with the result that all work which was not profitable was soon eliminated and profits immediately jumped because all work was made equally profitable.

System for the Photographic Studio was worked out by experts in accounting with the idea of giving the photographer as simple a means of bookkeeping as could be devised. It is flexible enough to meet the needs of any studio, but does not require the services of an expert accountant to keep the books straight.

By this system every item of studio expense is very simply recorded under its proper heading so that total expenses for permanent equipment, for materials, for wages or for general expenses can quickly be determined for any week or month or year and compared with totals of cash received. The actual condition of your business is known at all times—your profits can not be over-estimated or your expenses under-estimated. Your cost of materials covering any given period is seen at a glance and the cost of converting material into finished work will often open your eyes.

With such a system, leaks are readily found, waste is stopped, imaginary profits dwindle and real profits can be made to take their place. If you do not have a satisfactory system of records and books for handling your business there is no better time than the first of the year or the first of February or March to take an inventory and place your studio on a sound business footing.

A booklet, "System for the Photographic Studio," explains the method thoroughly, and this may be had from your dealer without charge. If you use the Eastman Studio Card Register System, a few Shop Tickets, Follow-up Cards and the Eastman Studio Cash Book will complete your outfit and enable you to know more about your business and to conduct it with more profit than is possible without good bookkeeping.



Dear Stock House:

"I have just received my order of goods, but find it was short the last item. This was a pair of rubber gloves. You certainly didn't include them in the shipment.

Yours truly,

H. Y. POE.

"P. S.—Yes you did, they were chucked into the stove with the packing and drove us all out of the studio. Send along another pair."



The most light with the greatest safety—Kodak Safelight Lamps.

Your portrait
for
your soldier

*Make the
appointment
to-day*

THE
PYRO STUDIO



Line cut No. 247. Price, 50 cents.

THE ONLY CONDITION

We make but one condition in our offer of cuts for the use of photographers.

It is obvious that two photographers in the same town would not care to use the same cut, and we are therefore obliged to limit this offer to one photographer in a town. It will be a case of first come first

served. The first order from a city will be promptly filled. Succeeding orders (if any) will necessarily be turned down and the remittance, of course, will be returned. It is also obvious that we cannot, on account of the cost of the drawings, furnish any large variety of cuts at the nominal prices quoted, and therefore can offer no substitute cut. Get your order in *first*. C. K. CO., LTD.

ENLIST YOUR LENS IN THE U. S. ARMY

The people are asked to help the Signal Corps of the Army get lenses enough for cameras for the fleet of observation airplanes now being built. The need is immediate and of great importance. The lens is the eye of the Army.

The situation is that, American manufacturers are not yet in a position to meet the sudden demand for special lenses for aerial service. Possessors of the required types are, therefore, urged to do their bit by enlisting their lenses in the service of the Army. They are asked to immediately notify the Photographic Division of the Signal Corps, U. S. A., Mills Building Annex, Washington, D. C., of lenses of the following descriptions which they are willing to sell, stating price asked:

Tessar Anastigmat Lenses made by Carl Zeiss, Jena, of a working aperture of F. 3.5 or F. 4.5, from $8\frac{1}{4}$ to 20 inch focal length.

Bausch & Lomb Zeiss Tessars, F. 4.5, from $8\frac{1}{2}$ to 20 inch focal length.

Voigtlander Heliar Anastigmat Lenses, F. 4.5, $8\frac{1}{4}$ to 24 inch focal length.

Practically all of the lenses of these types in America will be required, but the $8\frac{1}{4}$ inch lenses are most urgently needed.

8, 9, 12 and 14 inch condensers are wanted; also a number of Bausch & Lomb Zeiss Protars VII A No. 13, preferably set in Volute shutters.

(It is requested that the press and individuals giving publicity to the above give the specifications of the lenses desired accurately. This will avoid the labor and delay of unnecessary correspondence with people offering lenses that are unsuitable.)

Two methods of dark room illumination that you can be sure are safe.

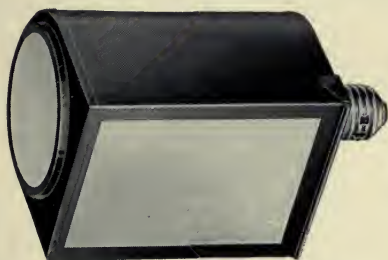
Kodak Safelight Lamp



By employing reflected light which shines through a Wratten Safelight, the greatest volume of illumination that can be used with safety is secured. You have a safe light *and yet there's more of it.*

Interior of lamp is enameled a brilliant white to intensify light reflection.

Kodak Safelight Lamp supplied with safelight and four feet of electric light cord with plug . . \$4.00



Brownie Safelight Lamp

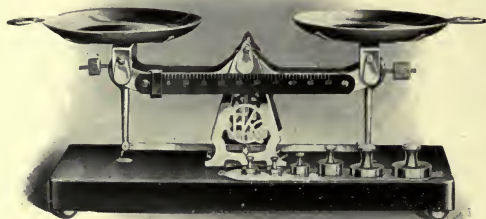
This lamp is admirably adapted to plate or film changing. Screwed into the ordinary electric light socket, in the wall or on a cord, the Brownie Safelight Lamp instantly provides a means of safe illumination. Both safelights, the circular one at the end and the rectangular one at the side, are removable.

Brownie Safelight Lamp \$1.25

Canadian Kodak Co., Limited,

All Dealers'.

Toronto, Canada.



EASTMAN SCALE

A practical and accurate avoirdupois scale specially designed for the convenience of the professional photographer.

The beam with the sliding weight is the feature which eliminates the use of small loose weights and simplifies the working of this scale. The large weights are carefully tested and marked in grains as well as ounces or fractions of ounces. The large weights which most nearly make up the amount of chemicals wanted are placed in the right hand pan and the weight on the beam is slid to the right to make up the exact amount. The scale is made of the best materials—all bearings are of hardened steel, the beam is black with white markings, all other parts being nickerled.

THE PRICE

Eastman Scale \$4.00

Canadian Kodak Co., Limited,

Toronto, Canada.

All Dealers'.

WANTED

DISCARDED NEGATIVES

We purchase discarded negatives of standard sizes from $4\frac{3}{4} \times 6\frac{1}{2}$ to 20×24 , providing same are in good condition and are carefully packed in accordance with our instructions.

We will pay all the freight on shipments of 100 lbs. or more, except from localities where the freight rate exceeds \$1.00 per 100 lbs., in which case the shipper will be required to pay the excess.

Before making any shipment please secure these instructions, prices and further particulars, which will be furnished on application.

Canadian Kodak Co., Limited,

Toronto, Canada.

Department S.

Strength and purity maintained at a uniform standard is the result of constant, careful testing of the chemicals bearing this seal. They are right for your use.



*Specify C. K. Co. Tested and
be sure of results.*

Canadian Kodak Co., Limited,
Toronto, Canada

All Dealers'.

The obvious way to make business is to create a demand for what you have to sell—photographs.



Eastman Portrait Albums

create a demand by supplying a practical, substantial and convenient means of caring for portraits as they should be cared for. They are adaptable to 87% of the sizes of portraits now made by photographers.

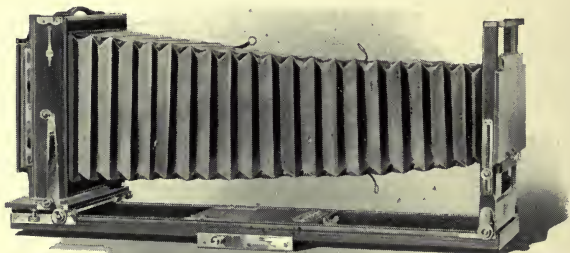
The more albums you sell, the more photographs you will sell to fill them.

EASTMAN KODAK COMPANY

ROCHESTER, N. Y.

All Dealers'.

Get the soldier groups.



Eastman View Camera No. 2

7 x 11

Narrower than 8 x 10, but longer, the proportions of the 7 x 11 are especially suited to either vertical or horizontal subjects. It is a size that fits the group picture, landscape or architectural subject equally well.

A picture of these proportions is suitable for a greater number of subjects than any of the present standard sizes, none of which parallel it. You must see a 7 x 11 print or mark out a 7 x 11 rectangle to get an idea of how suitable it is for groups, landscapes and architectural subjects.

The Eastman View Camera No. 2 is the improved model of Empire State and Century View, and is fitted with every practical convenience that our manufacturing experience has been able to suggest.

The new 7 x 11 size has a swing of unusual latitude and an especially large front board ($13\frac{1}{2} \times 6\frac{1}{2}$ inches) with sliding arrangement permitting the lens to be centered on either half of the plate when making two exposures on the plate.

THE PRICE

Eastman View Camera No. 2, 7 x 11, with case and one
Plate Holder \$50.00

CANADIAN KODAK CO., LIMITED,

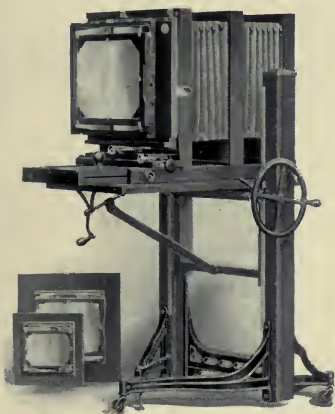
All Dealers'.

TORONTO, CANADA.

*The rapidity, smoothness, and precision afforded
in the operation of*

Century Studio Apparatus

are valuable requisites in every progressive studio.



Portrait film or Plates may be used in the Double View Holders which fit the 11 x 14, 8 x 10, or 5 x 7 reversible, spring actuated Ground Glass Adapter Backs, interchangeably attached to the sliding carriage.

The operator can make full sized negatives, or by the use of diaphragms and lateral movement of the sliding carriage, two 7 x 11 negatives on the same plate with the 11 x 14 back, or two 5 x 8 negatives with the 8 x 10 back.

The platform of the Semi-Centennial Stand, with camera in position, can be quickly and easily elevated to a height of 49 inches, or lowered to within 14 inches of the floor, and locked in any desirable position.

CENTURY CAMERA DEPARTMENT

EASTMAN KODAK COMPANY

ROCHESTER, N. Y.

FEATURE THEM
FOR YOUR

**Holiday
Trade**



**Xmas
Remembrance
Folders**



The Xmas Remembrance Folder

as a special Holiday offer will not interfere with your regular grades; in fact they will bring many people, especially the young folks, to your studio who otherwise at the time might not be interested in portraits.

Both Cover and Insert are made of excellent quality stock in colors Buff and White. In upper left-hand corner a Poinsettia Design is richly embossed in green and red relief and in the lower right corner the words, "With Kind Remembrance and Best Wishes for A Merry Christmas," embossed in green relief.

For $\frac{1}{2}$ Cabinet Square Prints only. Size Outside, $4\frac{1}{4} \times 7$ inches.

Price, \$5.50 per 100 Sample Mailed Free.

MANUFACTURED BY

Canadian Card Co., Toronto, Canada.

PHOTOGRAPHIC MOUNTS

MADE IN CANADA

